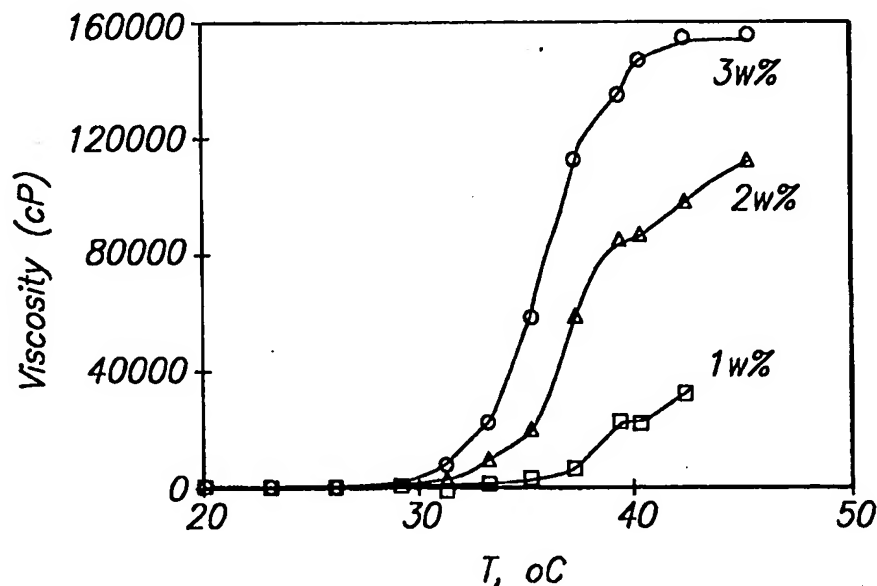




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(21) International Application Number: PCT/US98/09211 (22) International Filing Date: 8 May 1998 (08.05.98) (30) Priority Data: 08/853,728 9 May 1997 (09.05.97) US (71) Applicant: MEDLOGIC GLOBAL CORPORATION [US/US]; 4815 List Drive, Colorado Springs, CO 80919 (US). (72) Inventors: RON, Eyal, S.; 7 Coach Road, Lexington, MA 02173 (US). HAND, Barry, J.; 145 Butternut Hollow, Acton, MA 01718 (US). BROMBERG, Lev, S.; 15 Sherwood Road, Swampscott, MA 01907 (US). KEARNEY, Marie; 324 Faneuil Street #1, Brighton, MA 02135 (US). SCHILLER, Matthew, E.; Apartment 9, 1595 Beacon Street, Boston, MA 02146 (US). AHEARN, Peter, M.; 63 Webster Street, Whitman, MA 02382 (US). LUCZAK, Scott; 3 Remsen Avenue, Medfield, MA 02052 (US). MENDUM, Thomas, H., E.; 45 Columbus Avenue #1, Somerville, MA 02143 (US). (74) Agents: KREBS, Robert, E. et al.; Burns, Doane, Swecker & Mathis, L.L.P., P.O. Box 1404, Alexandria, VA 22313-1404 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: COMPOSITIONS FOR COSMETIC APPLICATIONS



## (57) Abstract

A cosmetic composition is described having a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.

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## COMPOSITIONS FOR COSMETIC APPLICATIONS

This application is a continuation-in-part application of copending application U.S.S.N. 60/034,805 filed January 2, 1997, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application PCT/US96/10376 filed June 14, 1996, designating the United States, and entitled "Responsive Polymer Networks and Methods of Their Use", which is a continuation-in-part application of copending application U.S.S.N. 08/580, 986 filed January 3, 1996, and entitled "Responsive Polymer Networks and Methods of Their Use", each of which is incorporated entirely by reference.

### Field of the Invention

The present invention relates to a cosmetic composition useful in a variety of topical and personal care products, including treatments of disorders and imperfections of the skin or other areas of the body. More particularly, the present invention is directed to a cosmetic composition comprising a poloxamer:poly(acrylic acid) polymer network that can be designed to reversibly gel over a wide range of conditions to provide a composition having a controllable range of viscosities, making it useful in a variety of cosmetic and personal care applications.

### Background of the Invention

Many examples are known of cosmetic compositions intended for treatment of the skin or elsewhere on the body, where it is desired to have certain properties of viscosity. Hydrogels, such as cellulose, have been included as thickeners in cosmetic compositions. A hydrogel is a polymer network which absorbs a large quantity of water without the polymer dissolving in water. The hydrophilic areas of the polymer chain absorb water and form a gel region. The extent of gelation depends upon the volume of the solution which the gel region occupies.

Reversibly gelling solutions are known in which the solution viscosity increases and decreases with an increase and decrease in temperature, respectively. Such

reversibly gelling systems are useful wherever it is desirable to handle a material in a fluid state, but performance is preferably in a gelled or more viscous state.

A known material with these properties is a thermal setting gel using block copolymer polyols, available commercially as Pluronic® polyols (BASF, Ludwigshafen, Germany), which is described in U.S. Patent No. 4, 188, 373. Adjusting the concentration of the polymer gives the desired liquid-gel transition. However, concentrations of the polyol polymer of at least 18-20% by weight are needed to produce a composition which exhibits such a transition at commercially or physiologically useful temperatures. Also, solutions containing 18-20% by weight of responsive polymer are typically very viscous even in the "liquid" phase, so that these solutions can not function under conditions where low viscosity, free-flowing is required prior to transition. In addition, these polymer concentrations are so high that the material itself may cause unfavorable interactions during use.

Another known system which is liquid at room temperature, but forms a semi-solid when warmed to about body temperature is formed from tetrafunctional block polymers of polyoxyethylene and polyoxypropylene condensed with ethylenediamine, commercially available at Tetronic® polyols. These compositions are formed from approximately 10% to 5% by weight of the polyol in an aqueous medium. See, U.S. Patent No. 5,252,318.

Joshi, et al. in U.S. Patent No. 5,252,318 reports reversible gelling compositions which are made up of a physical blend of a pH-sensitive gelling polymer (such as a cross-linked poly(acrylic acid) and a temperature-sensitive gelling polymer (such as methyl cellulose or block copolymers of poly(ethyleneoxide) and poly(propyleneoxide)). In compositions including methylcellulose, 5- to 8-fold increases in viscosity are observed upon a simultaneous change in temperature and pH for very low methylcellulose levels (1-4% by weight). See, Figs. 1 and 2 of Joshi, et al. In compositions including Pluronic® and Tetronic® polyols, commercially available forms of poly(ethyleneoxide)/poly(propyleneoxide) block copolymers, significant increases in viscosity (5- to 8-fold) upon a simultaneous change in temperature and pH are observed only at much higher polymer levels. See, Figs. 3-6 of Joshi, et al.



Hoffman, et al. in WO95/24430 disclose block and graft copolymers comprising a pH-sensitive polymer component and a temperature-sensitive polymer component.

The block and graft copolymers are well-ordered and contain regularly repeating units of the pH-sensitive and temperature-sensitive polymer components. The copolymers are described as having a lower critical solution temperature (LCST), at which both solution-to-gel transition and precipitation phase transition occur. Thus, the transition to a gel is accompanied by the clouding and opacification of the solution. Light transmission is reduced, which may be undesirable in many applications, where the aesthetic characteristics of the composition are of some concern.

Thus, the known systems which exhibit reversible gelation are limited in that they require large solids content and/or in that the increase in viscosity is less than 10-fold. In addition, some known systems exhibit an increase in viscosity which is accompanied with the undesirable opacification of the composite.

#### Summary of the Invention

It is an object of the present invention to provide a cosmetic composition which includes a component capable of reversible gelation or viscosification.

It is a further object of the invention to provide a cosmetic composition which includes an ingredient capable of gelation or viscosification at very low solids content.

It is another object of the present invention to provide a cosmetic composition which possesses improved flow and gelation characteristics as compared to properties possessed by conventional reversible gelation compositions.

It is a further object of the invention to provide a polymer network composition for use in cosmetic compositions useful as a surfactant or emulsifier in the solubilization of additives and, in particular, hydrophobic additives.

It is a further object of the invention to provide a cosmetic composition which possesses the appropriate thickness, emolliency and cosmetic effect with a minimum of solids content.

It is a further object of the invention to provide a polymer network for use in cosmetic compositions useful as a suspending agent for otherwise insoluble additives.

It is yet a further object of the present invention to provide a composition capable of solubilizing emulsions at elevated temperatures.

It is yet a further object of the invention to provide new and useful cosmetic compositions incorporating the reversibly gelling polymer network composition of the present invention, which take advantage of its unique advantageous properties.

It is yet another object of the present invention to provide reversibly gelling polymer network compositions which are composed of biocompatible polymers.

These and other objects of the invention are achieved with a cosmetic compositions which incorporates a poloxamer:poly(acrylic acid) polymer network as a cosmetically acceptable carrier. The polymer network comprises a poloxamer component randomly bonded to a poly(acrylic acid), or PAA, component in and aqueous-based medium, the polymer network being capable of aggregating in response to an increase in temperature. The reverse thermal viscosifying poloxamer:poly(acrylic acid) polymer network includes random covalent bonding between the poly(acrylic acid) component and the poloxamer component of the network. The polymer network may also include some unbound or "free" poloxamer or other additives which contribute to or modify the characteristic properties of the polymer composition.

In addition, the cosmetic composition includes a cosmetic agent selected to provide a preselected cosmetic effect. By "cosmetic agent", as that term is used herein, it is meant that the additive imparts a cosmetic effect. A cosmetic effect is distinguishable from a pharmaceutical effect in that a cosmetic effect relates to the promoting bodily attractiveness or masking the physical manifestation of a disorder or disease. In contrast, a pharmaceutical seeks to treat the source or symptom of a disease or physical disorder. It is noted however, that the same additives may have either a cosmetic or pharmaceutical effect, depending upon the amounts used and the manner of administration.

By "cosmetic", as that term is used herein, it is meant the cosmetic and personal-care applications intended to promote bodily attractiveness or to cover or mask the physical manifestations of a disorder or disease. Cosmetics include those products subject to regulation under the FDA cosmetic guidelines, as well as sunscreen products,

acne products, skin protectant products, anti-dandruff products, and deodorant and antiperspirant products.

By "gelation" or viscosification, as that term is used herein, it is meant a drastic increase in the viscosity of the polymer network solution. Gelation is dependent on the initial viscosity of the solution, but typically a viscosity increase in the range of 2- to 100-fold, and preferably 5- to 50-fold, and more preferably 10- to 20-fold is observed in the polymer network which is used in the preparation of the cosmetic compositions of the invention. Such effects are observed in a simple polymer network solution and the effect may be modified by the presence of other components in the cosmetic composition.

By "reversibly gelling" as that term is used herein, it is meant that the process of gelation takes place upon an *increase* in temperature rather than a decrease in temperature. This is counter-intuitive, since it is generally known that solution viscosity *decreases* with an increase in temperature.

As used herein, "poloxamer" is a triblock copolymer derived from poly(ethyleneoxide)-poly(propyleneoxide)-poly(ethyleneoxide) blocks. The poloxamer is capable of responding to a change in temperature by altering its degree of association and/or agglomeration. The aggregation may be in the form of micelle formation, precipitation, labile cross-linking or other factors. The poloxamer has the general formula of a triad ABA block copolymer,  $(P_1)_a(P_2)_b(P_1)_a$  where  $P_1$ =poly(ethyleneoxide) and  $P_2$ =poly(propyleneoxide) blocks, where a is in the range of 10-50 and where b is in the range of 50-70.

The poly(acrylic acid) component includes poly(acrylic acid) and its salts. The poly(acrylic acid) supports and interacts with the poloxamer component so that a multi-material, responsive polymer network is formed. The interaction of the poloxamer and poly(acrylic acid) exhibits a synergistic effect, which magnifies the effect of the poloxamer component in viscosifying and/or gelling the solution.

The novel interaction between the constituent polymers components of the polymer network permits formation of gels at very low solids content. Gelation and/or viscosification is observed in aqueous solutions having about 0.01 to 20 wt% of the

poloxamer component and about 0.01 to 20 wt% of the poly(acrylic acid) component.

A typical reversibly gelling polymer network may be comprised of less than about 4 wt% of total polymer solids (e.g., poloxamer and poly(acrylic acid)) and even less than 1 wt% total polymer solids while still exhibiting reverse thermal viscosification. Of course, the total solids content including additives of a reversibly gelling polymer network composition may be much higher. The viscosity of the gel increases at least ten-fold with an increase in temperature of about 5°C at pH 7 and 1 wt% polymer. Viscosity increases may be even greater over a larger temperature range at pH 7 and 1% polymer network content.

- 10 The relative proportion of poloxamer and poly(acrylic acid) may vary dependent upon the desired properties of the polymer composition. In one embodiment, the poloxamer is present in a range of about 1 to 20 wt% and the poly(acrylic acid) is present in a range of about 99 to 80 wt%. In another embodiment, the poloxamer component is present in a range of about 79 to 60 wt%. In another embodiment, the poloxamer component is present in a range of about 41 to 50 wt%. In another embodiment, the poloxamer component is present in a range of about 51 to 60 wt% and the poly(acrylic acid) component is present in a range of about 49 to 40 wt%. In yet another embodiment, the poloxamer component is present in a range of about 61 to 90 wt% and the poly(acrylic acid) component is present in a range of about 39 to 20 wt%. In another embodiment, the poloxamer component is present in a range of about 81 to 99 wt% and the poly(acrylic acid) component is present in a range of about 10 to 1 wt%.

- 25 The poloxamer:poly(acrylic acid) polymer network described above is included in a cosmetic composition to improve the flow characteristics, thickness and other properties of the composition. The composition includes additional cosmetic agents, such as are needed for the cosmetic purpose of the composition. Additives also may be included to modify the polymer network performance, such as to increase or decrease the temperature of the liquid-to-gel transition and/or to increase or decrease the viscosity of the responsive polymer composition.

In one aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to impart thickening properties to the cosmetic composition at the use and/or application temperature. Such thickening properties include enhanced overall viscosity, as well as a desirable viscosity response with temperature. The polymer network may be useful as a thickener in pH ranges where other thickeners are not effective.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network is incorporated into a cosmetic composition to stabilize and solubilize hydrophobic agents in the cosmetic composition. The polymer network may be included to increase emulsion stability. Many emulsions, i.e., suspension of small droplets or particles of a first material in a second material, lose viscosity upon heating. As will be demonstrated herein, the poloxamer:poly(acrylic acid) polymer network retains its emulsifying properties even with temperature increase.

In addition, it may be included in the composition to impart emolliency to the composition. The composition may also act as a film-forming agent after it has been applied to the skin. This film-forming agent may be used as a barrier to prevent water loss from the skin which contributes to the moisturization of the skin.

In another aspect of the invention, the poloxamer:poly(acrylic acid) polymer network may be included as an additive in cosmetic applications to prevent viscosity loss at elevated temperatures.

#### Brief Description of the Drawing

The invention is described with reference to the Drawing, which is presented for the purpose of illustration and is in no way intended to be limiting, and in which:

FIG. 1 is a graph of viscosity vs. temperature for a 1 wt%, 2 wt%, and 3 wt% responsive polymer network aqueous composition of a poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of  $0.44 \text{ sec}^{-1}$ ;

FIG. 2 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition demonstrating reversibility of the viscosity response;

FIG. 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates;

FIG. 4 shows a viscosity response curve for a 2 wt% poloxamer:poly(acrylic acid) polymer network composition prepared with nominal mixing and stirring and  
5 prepared using high shear homogenization (8000 rpm, 30 min);

FIG. 5 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition at various pHs;

FIG. 6 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition  
10 of 0.25 wt% KCl;

FIG. 7 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition with and without addition of 0.5 wt% acetamide MEA;

FIG. 8 is a graph of viscosity vs. temperature for a 1 wt% poloxamer:poly(acrylic acid) polymer network composition without and with 5 wt%, 10  
15 wt% and 20 wt% added ethanol, respectively;

FIG. 9 is an illustration of a reversibly gelling polymer network used as an emulsifier and stabilizer for a hydrophobic agent;

FIG. 10 is a schematic illustration of the poloxamer:poly(acrylic acid) polymer  
20 network below and above the transition temperature illustrating the aggregation of the hydrophobic poloxamer regions;

FIG. 11 is a graph of viscosity vs. pH for a 1 wt% responsive polymer network aqueous composition of a poloxamer/poly(acrylic acid) (1:1) measured at a shear rate of  
0.44 sec<sup>-1</sup>;

FIG. 12 is a plot of viscosity vs. temperature for (a) a 1 wt% responsive  
25 polymer network aqueous composition of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) and (b) a 1 wt% physical blend of Pluronic® F127 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate 0.22 sec<sup>-1</sup>;

FIG. 13 is a plot of viscosity vs. temperature for a 1 wt% responsive polymer network aqueous composition of Pluronic® F88:poloxamer:poly(acrylic acid) (1:1) in deionized water at pH 7.0 measured at shear rate of 22 sec<sup>-1</sup>;

FIG. 15 is a plot of viscosity vs. temperature for a responsive polymer network composition of 2 wt% Pluronic® F123 poloxamer:poly(acrylic acid) (1:1) at pH 7.0 measured at a shear rate of 22 sec<sup>-1</sup>;

FIG. 16 is a plot of viscosity vs. temperature for 1 wt% made of series of poloxamers and poly(acrylic acid) (1:1) in deionized water at a shear rate of 132 sec<sup>-1</sup>;

FIG. 17 is a plot showing release of hemoglobin from a poloxamer:poly(acrylic acid) polymer network of the invention;

FIG. 18 is a plot showing the release of lysozyme from the poloxamer:poly(acrylic acid) polymer complex of the invention;

FIG. 19 is a plot showing release of insulin from a poloxamer:poly(acrylic acid) polymer network composition of the invention;

FIG. 20 is a plot of viscosity vs. temperature for a poloxamer:poly(acrylic acid) polymer network composition (a) before and (b) after sterilization by autoclave;

FIG. 21 is a plot of viscosity vs. temperature for an oil-free moisturizing formulation prepared from (a) a responsive polymer network composition of the invention and (b) a convention oil-in-water formulation;

FIG. 22 is a plot of equilibrium solubility of estradiol (A, B) and progesterone (C, D) in aqueous solutions (pH 7) of Pluronic® F127 (A, C) and responsive polymer network (B, D) vs. temperature;

FIG. 23 is a plot of the ratio of equilibrium solubilities of estradiol in responsive polymer network and water vs. polymer concentration in the responsive polymer network solutions;

FIG. 24 is a plot of the effect of loading fluorescein on the onset of gelation of responsive polymer network vs. total polymer concentration in responsive polymer network solution (pH 7.0);

FIG. 25 is a plot of the percentage of (a) estradiol and (b) progesterone release from responsive polymer network vs. time;

FIG. 26 is a plot of the rate of progesterone release and macroscopic viscosity vs. polymer concentration;

FIG. 27 is a plot of the percentage of progesterone release vs. polymer concentration in responsive polymer network; and

5 FIG. 28 is a plot of the relative diffusivity of poly(styrene) latex particles in water and responsive polymer network.

### Detailed Description of the Invention

The present invention is directed to a cosmetic composition comprising a  
10 cosmetically acceptable carrier comprising a novel poloxamer:poly(acrylic acid) polymer network. The polymer network functions as a temperature sensitive thickening agent, and in addition possesses surfactant and emulsifying capabilities which may be beneficial to the cosmetic composition. The polymer network composition according to the invention includes a poloxamer component randomly bonded to a poly(acrylic acid)  
15 component. The two polymer component may interact with one another on a molecular level. The polymer network contains about 0.01 - 20 wt% each of poloxamer and poly(acrylic acid). Exemplary polymer network compositions range from about 1:10 to about 10:1 poloxamer:poly(acrylic acid). Polymer network gel compositions which exhibit a reversible gelation at body temperature (25-40°C) and/or at physiological pH  
20 (ca. pH 3.0-9.0) and even in basic environment up to pH 13 (hair care) are particularly preferred for cosmetic applications.

In one embodiment of the invention, a 1:1 poloxamer:poly(acrylic acid) polymer network at appropriate pH exhibits flow properties of a liquid at about room temperature, yet rapidly thickens into a gel consistency of at least about five times  
25 greater, preferably at least about 10 times greater, and even more preferably at least about 30 times and up to 100 times greater, viscosity upon increase in temperature of about 10°C and preferably about 5°C. The reversibly gelling polymer network of the present invention exhibit gelation even at very low polymer concentrations. For example, polymer network compositions at pH 7 comprising about 0.5 wt% poloxamer  
30 component and about 0.5 wt% PAA exhibits a significant increase in viscosity from a



free-flowing liquid (50 cps) to a gel (6000 cps). The observed gelation takes place at low solids contents, such as less than 20 wt% or preferably less than about 10 wt%, or more preferably less than about 2.5 wt% or most preferably less than about 0.1 wt%.

Thus, only a small amount by weight of the polymer network need be incorporated into  
5 a cosmetic composition in order to provide the desired thickening or viscosifying effect.

The reverse viscosification effect at low polymer concentrations provides clear, colorless gels which are particularly well-suited to cosmetic applications. For example, very little residue is formed upon dehydration which may be important in some applications, such as in topically applied cosmetics. An additional advantage of the  
10 polymer network of the invention is that it remains clear and translucent above and below the critical temperature or pH. These characteristics of the reversibly gelling polymer network make it well suited for use in cosmetic compositions.

The polymer network of the present invention technology may be added to cosmetic formulations to increase the thickness and viscosity of the composition. The  
15 poloxamer:poly(acrylic acid) polymer network possesses hydrophobic regions capable of aggregation. Unlike conventional thickeners, the aggregation of the polymer network of the present invention is temperature sensitive. Thus the inventive polymer network of the present invention may have a transition temperature (i.e., temperature of aggregation) above room temperature so that the cosmetic composition is of low  
20 viscosity at or below room temperature and is of high viscosity at or around body temperature (body temperature includes both surface and internal body temperature). Thus, a composition may be prepared at low temperatures while the polymer network is in a low viscosity state. Mixing of ingredients under low viscosity is expected to be easier, thus simplifying the manufacturing process. Yet, the resultant mixture would be  
25 of increased viscosity at use temperatures. As a further advantage, a cosmetic composition comprising poloxamer:poly(acrylic acid) polymer network may be spread thinly to allow for even application, due to its low viscosity at room temperature, but will thicken and "fill" the skin contours upon warming up to body surface temperature.

In another aspect of the invention, the composition may be applied through a  
30 nozzle that provides high shear to reduce viscosity, yet the composition regains its

viscosity after application to the skin. This contrasts with conventional formulations which permanently lose viscosity after being subjected to high shear.

In another aspect of the invention, the composition may be formulated and applied as a liquid, spray, semi-solid gel, cream, ointment, lotion, stick, roll-on  
5 formulation, mousse, pad-applied formulation, and film-forming formulation.

The poloxamer:poly(acrylic acid) polymer network may also be included in a cosmetic composition for use as a stabilizing, solubilizing or emulsifying agent for a hydrophobic component of the cosmetic formulation. The strong hydrophilic regions of the poloxamer resulting from aggregation and micelle formation create hydrophobic  
10 domains which may be used to solubilize and control release of hydrophobic agents. Similar micelle-based systems have been shown to protect trapped peptides against enzymatic degradation from surface enzymes.

The reversibly gelling polymer network of the present invention is a unique polymer composition designed to abruptly change its physical characteristics or the  
15 characteristics and properties of materials mixed therewith with a change in temperature. Without intending to be bound by any particular mechanism or chemical structure, it is believed that the structure of the polymer network involves a random bonding of the poloxamer onto the backbone of the poly(acrylic acid). A portion of the poloxamer which is present during the polymerization reaction which forms the  
20 poly(acrylic acid) is bonded to the backbone of the forming poly(acrylic acid) through hydrogen abstraction and subsequent reaction. See detailed discussion of the mechanism, below. The combination of the poly(acrylic acid) and randomly bonded poloxamer gives the composition its unique properties. Any free poloxamer remaining after polymerization of PAA remains associated with the random co-polymer, resulting  
25 in a miscible composition. Free poloxamer may also be present in the polymer network composition; however, its presence is not required in order to observe reverse thermal viscosification.

The poly(acrylic acid) may be linear, branched and/or cross-linked. Poly(acrylic acid) is capable of ionization with a change in pH of the solution. By  
30 ionization, as that term is used with respect to poly(acrylic acid), it is meant the

formation of the conjugate base of the acrylic acid, namely acrylate. As used herein, poly(acrylic acid) includes both ionized and non-ionized versions of the polymer.

Changes in ionic strength may be accomplished by a change in pH or by a change in salt concentration. The viscosifying effect of the polymer network is partly a function of the ionization of the poly(acrylic acid); however, reverse thermal gelling may occur without ionization. Changes to the ionic state of the polymer causes the polymer to experience attractive (collapsing) or repulsive (expanding) forces. Where there is no need or desire for the composition to be applied in a high viscosity state, it may be possible to prepare the composition as non-ionized poly(acrylic acid). The body's natural buffering ability will adjust the pH of the applied composition to ionize the poly(acrylic acid) and thereby develop its characteristic viscosity.

The poloxamer possesses regions of hydrophobic character, e.g., poly(propyleneoxide) blocks, and hydrophilic character, e.g., poly(ethyleneoxide) blocks. The poloxamer may be linear or branched. Suitable poloxamers include triad block copolymers of poly(ethyleneoxide) and poly(propyleneoxide) having the general formula  $(P_1)_a(P_2)_b(P_1)_a$ , where  $P_1$  = poly(ethyleneoxide), and  $P_2$  = poly(propyleneoxide) blocks, where a is in the range of 10-50 and where b is in the range of 50-70, where poly(propyleneoxide) represents the hydrophobic portion of the polymer and poly(ethyleneoxide) represents the hydrophilic portion of the polymer. Pluronic® polymers (BASF) are commercially available for (a) in the range of 16 to 48 and (b) ranging from 54-62. One or more poloxamers may be used in the reversibly gelling polymer network composition of the present invention.

The reversibly gelling responsive polymer networks compositions of the present invention are highly stable and do not exhibit any phase separation upon standing or upon repeated cycling between a liquid and a gel state. Samples have stood at room temperature for more than three months without any noticeable decomposition, clouding, phase separation or degradation of gelation properties. This is in direct contrast to polymer blends and aqueous mixed polymer solutions, where phase stability and phase separation is a problem, particularly where the constituent polymers are immiscible in one another.

And example of the dramatic increase in viscosity and of the gelation of the reversibly gelling polymer network compositions of the invention is shown in Figure 1. Figure 1 is a graph of viscosity vs. temperatures for 1 wt%, 2 wt%, and 3 wt% polymer network compositions comprising 1:1 poloxamer:poly(acrylic acid) hydrated and neutralized. The viscosity measurements were taken on a Brookfield viscometer at a shear rate of  $0.44 \text{ sec}^{-1}$  at pH 7.0. All solutions had an initial viscosity of about 1080 cP and exhibited a dramatic increase in viscosity to gel point at about  $35^{\circ}\text{C}$ . This is not typical of all polymer network compositions since polymerization condition will affect initial viscosity. Final viscosities were approximately 33,000 cP, 100,000 cP and 155,000 cP for the 1 wt%, 2 wt% and 3 wt% compositions, respectively. This represents viscosity increases of about 30-, 90- and 140-fold, respectively. This effect is entirely reversible. Upon cooling, the composition regains its initial viscosity. This is demonstrated in Figure 2, where a 1 wt% poloxamer:poly(acrylic acid) composition is warmed through the transition temperature up to  $35^{\circ}\text{C}$  (simple curve), cooled to room temperature ( $24^{\circ}\text{C}$ , ticked curve) and then warmed again up to above the transition temperature (open box curve). The viscosity response was virtually identical in all three instances.

As would be expected with a non-Newtonian system, the solution viscosity differs with different shear rates. Figure 3 shows the viscosity response of a 2 wt% poloxamer:poly(acrylic acid) polymer composition at various shear rates. The viscosity response is consistent between  $24^{\circ}\text{C}$  and  $34^{\circ}\text{C}$ ; however, the final viscosity is reduced with increasing shear rate.

However, unlike many prior art hydrogels, e.g., carbomers, the poloxamer:poly(acrylic acid) polymer network composition does not permanently lose viscosity after being subjected to high shear conditions. The poloxamer:poly(acrylic acid) polymer network composition remains unaffected by such shear conditions as homogenization. Figure 4 compares the viscosity response curve of a 2 wt% poloxamer:poly(acrylic acid) polymer composition prepared with nominal mixing (simple line) and stirring with that of a polymer composition of similar composition

prepared using high shear homogenization designated by a ticked line (8000 rpm, 30 min). No significant decrease in viscosity is observed.

5 A number of factors influence the viscosity and transition temperature of the composition. The more important factors include polymer concentration, pH, and presence and nature of additives.

The effect of pH on the viscosity of reversibly gelling polymer networks is shown in Figure 5. Increasing pH from the starting pH has a lesser effect on the viscosity than decreasing the pH. This may relate to the extent of ionization of the poly(acrylic acid) component of the polymer network as discussed above. This may be  
10 clearly seen in Figure 5 when comparing the viscosity response of a 1 wt% poloxamer:poly(acrylic acid) polymer composition at pH 5 and pH 11. Satisfactory viscosities can be obtained at high pHs indicating the potential value of the reversibly gelling polymer network in products such as depilatories, hair straighteners and hair relaxers.

15 The responsive polymer network may also include additives for influencing the performance of the polymer composition, such as the transition temperature and the viscosity of the polymer composition above the transition temperature. The following list is not intended to be exhaustive but rather illustrative of the broad variety of additives which can be used.

20 These materials include solvents (e.g., 2-propanol, ethanol, acetone, 1,2-pyrrolidinone, N-methylpyrrolidinone), salts (e.g., calcium chloride, sodium chloride, potassium chloride, sodium or potassium phosphates, borate buffers, sodium citrate), preservatives (benzalkonium chloride, phenoxyethanol, sodium hydroxymethylglycinate, ethylparaben, benzoyl alcohol, methylparaben,  
25 propylparaben, butylparaben, Germaben II), humectant/moisturizers (acetamide MEA, lactimide MEA, hydrolyzed collagen, mannitol, panthenol, glycerin), lubricants (hyaluronic acid, mineral oil, PEG-60-lanolin, PPG-12-PEG-50-lanolin, PPG-2 myristyl ether propionate) and surfactants.

Surfactants may be divided into three classes: cationic, anionic, and non-ionics.  
30 An example of a cationic surfactant used is ricinoleamidopropyl ethyldimonium

ethosulfate (Lipoquat R). Anionic surfactants include sodium dodecyl sulfate and ether sulfates such as Rhodapex CO-436. Nonionic surfactants include Surfynol CT-111, TG, polyoxyethylene sorbitan fatty acid esters such as Tween 65 and 80, sorbitan fatty acid esters such as Span 65, alkylphenol ethoxylates such as Igepal CO-210 and 430, 5 dimethicone copolyols such as Dow Corning 190, 193, and Silwet L7001.

The addition of polymers has been studied including xanthan gum, cellulose such as hydroxyethylcellulose (HEC), carbomethoxycellulose (CMC), lauryldimonium hydroxypropyl oxyethyl cellulose (Crodamel QL), hydroxypropylcellulose (HPC), and hydroxypropylmethylcellulose (HPMC), poly(acrylic acid), cyclodextrins, methyl 10 acrylamido propyl triammonium chloride (MAPTAC), polyethylene oxide, polyvinylpyrrolidone, polyvinyl alcohol, and propylene oxide/ethylene oxide random copolymers. Poloxamers may also be used as additives. Examples include both the Pluronic® polyols having an  $(P_1)_a(P_2)_b(P_1)_a$  structure such as Pluronic® F38, L44, P65, F68, F88, L92, P103, P104, P105, F108, L122, and F127, as well as the reverse 15 Pluronic® R series  $(P_2)_a(P_1)_b(P_2)_a$  structure such as Pluronic® 17R2 and 25R8. Other miscellaneous materials include propyleneoxide, urea, triethanolamine, alkylphenol ethoxylates (Iconol series), and linear alcohol alkoxyates (Plurafac series).

Additives affect the viscosity of the compositions differently depending upon the nature of the additive and its concentration. Some additives will affect the initial or 20 final viscosity, whereas others will affect the temperature range of the viscosity response, or both.

Potassium chloride and acetamide MEA are two examples of additives which decrease the final viscosity of the composition (see Example 30). KCl (0.25%) added to a 1 wt% reversibly gelling polymer composition reduces the viscosity by about 3000 25 cps. See Figure 6. The humectant, acetamide MEA, lowers the viscosity of a 1 wt% solution by approximately 1, 500 cps (see Figure 7).

Glycerin, ethanol and dimethicone copolymer have been shown to affect the temperature range over which the viscosity response occurs. Glycerin shifts the transition temperature to a slightly lower range from an initial 24-34°C to about 24- 30 30°C, but does not affect the final viscosity (see Example 44). The effect of ethanol on

the viscosity is different at different concentration levels. At 5 wt% and 10 wt% added ethanol, the transition temperature is shifted to lower ranges, e.g., 24-29°C and 20-29°C, respectively. At 20 wt% added ethanol, the composition not only exhibits a lowering of the transition temperature, but also a marked increase in initial and final viscosity. See Figure 8. Dimethicone copolymer (1 wt%) also changed the transition temperature, but in this instance the transition temperature range was raised to 28-41°C. Thus, proper selection of additives permits the formulator to adjust the transition temperature to various ranges.

Those skilled in the art will appreciate that the polymer network compositions of the present invention may be utilized for a wide variety of cosmetic and personal care applications. To prepare a cosmetic composition, an effective amount of cosmetically active agent(s) which imparts the desirable cosmetic effect is incorporated into the reversibly gelling polymer network composition of the present invention. Preferably the selected agent is water soluble, which will readily lend itself to a homogeneous dispersion through out the reversibly gelling polymer network composition; however, the polymer network has been demonstrated to significantly solubilize or suspend hydrophilic agents in order to improve formulation homogeneity (see Example 36). It is also preferred that the agent(s) is nonreactive with the polymer network composition. For materials which are not water soluble, it is also within the scope of the invention to disperse or suspend powders or oil (lipophilic materials) throughout the polymer network composition. It will also be appreciated that some applications may require a sterile environment. It is contemplated as within the scope of the invention that the reversibly gelling polymer network compositions of the present invention may be prepared under sterile conditions. An additional feature of the reversibly gelling polymer composition is that it is prepared from constituent polymers that have known accepted toxicological profiles.

The poloxamer:poly(acrylic acid) polymer network has been evaluated under Good Laboratory Practice (GLP) standard protocols known in the art for toxicity in animal models and found to exhibit no toxic effects. The results of the toxicity study

are summarized in the following Table 1. The non-toxicity of the polymer network makes it an ideal candidate for use in cosmetic compositions.

Table 1. Toxicity data for 6% poloxamer:poly(acrylic acid) solution at pH 7.

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Reaction Tests	Mode of Testing	Results
Skin sensitization	guinea pig - topical	not a sensitizer
Eye irritation	rabbit - eye instillation	negative
Primary dermal irritation	rabbit - topical	very slight edema (1 on a scale of 1-8)
Acute dermal toxicity	rat - single dose (2g/kg)	no toxicity
Acute oral toxicity	rat - single dose (5g/kg)	no toxicity
AMES test		negative

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Exemplary cosmetic and personal care applications, for which the reversibly gelling polymer network composition may be used include, but are not limited to, baby products, such as baby shampoos, lotions, powders and creams; bath preparations, such as bath oils, tablets and salts, bubble baths, bath fragrances and bath capsules; eye makeup preparations, such as eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover and mascara; fragrance preparations, such as colognes and toilet waters, powders and sachets; noncoloring hair preparations, such as hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations such as hair dye, hair tints, hair shampoos, hair color sprays, hair lighteners and hair bleaches; makeup preparations such as face powders, foundations, leg and body paints, lipstick, makeup bases, rouges and makeup fixatives; manicuring preparations such as basecoats and undercoats, cuticle softeners, nail creams and lotions, nail extenders, nail polish and enamel, and nail polish and enamel remover; oral hygiene products such as dentrifices and mouthwashes; personal cleanliness, such as bath soaps and detergents, deodorants, douches and feminine hygiene products; shaving preparations such as aftershave lotion, beard softeners, men's talcum, shaving cream, shaving soap and preshave lotions; skin care preparations such as cleansing preparations, skin antiseptics, depilatories, face and

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neck cleansers, body and hand cleansers, foot powders and sprays, moisturizers, night preparations, paste masks, and skin fresheners; and suntan preparations such as suntan creams, gels and lotions, indoor tanning preparations.

Preparation of the above-named cosmetic compositions and others may be accomplished with reference to any of the cosmetic formulation guidebooks and industry journals which are available in the cosmetic industry. These references supply standard formulations which may be modified by the addition or substitution of the reversible viscosifying polymer network of the present invention into the formulation. Suitable guidebooks include Cosmetics and Toiletries Magazine, Vo. 111 (March, 1996); Formulary: Ideas for Personal Care, Croda, Inc., Parsippany, NJ (1993); and Cosmeticon: Cosmetic Formulary, BASF, which are hereby incorporated in their entirety by reference.

The cosmetic composition may be in any form. Suitable forms include but are not limited to lotions, creams, sticks, roll-on formulations, mousses, aerosol sprays, pad-applied formulations, and film-forming formulations.

As those skilled in the art will appreciate, the foregoing list is exemplary only. Because the reversibly gelling polymer network composition of the present invention is suited for application under a variety of physiological conditions, a wide variety of cosmetically active agents may be incorporated into and administered from the polymer network composition. In addition to the poloxamer:poly(acrylic acid) polymer network, additional cosmetically acceptable carriers may be included in the composition, such as by way of example only, emollients, surfactant, humectants, powders and other solvents. By way of example only, the cosmetic composition also may include additional components, which serve to provide additional aspects of the cosmetic affect or to improve the stability and/or administration of the cosmetic. Such additional components include, but are not limited to, preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, antiperspirants, antiseptics, antistatic agents, astringents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents,

conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosser, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances. Suitable materials which serve the additive functions listed here are well known in the cosmetic industry. a listing of the additive function and materials suitable for incorporation into the cosmetic composition may be found in Appendix A, which is appended hereto at the end of the specification. Further information may be obtained by reference to The Cosmetic Bench Handbook, Cosmetics & Toiletries, C.C. Urbano, editor, Allured Publ. Corp., 1996, which is hereby incorporated in its entirety by reference.

A brief description of some preferred additives and cosmetically active agents follows. The compositions of the invention include a safe and effective amount of a cosmetically active agent. "Safe and effective", as it is used herein, means an amount high enough to significantly positively modify the condition to be treated or the cosmetic effect to be obtained, but low enough to avoid serious side effects.

Preservative can be desirably incorporated into the cosmetic compositions of the invention to protect against the growth of potentially harmful microorganisms. Suitable preservatives include, but are not limited to, alkyl esters of parahydroxybenzoic acid, hydantoin derivatives, parabens, propionate salts, triclosan tricarbonyl ether, tea tree oil, alcohols, farnesol, farnesol acetate, hexachlorophene and quaternary ammonium salts, such as benzalkonium, and a variety of zinc and aluminum salts. Cosmetic chemists are familiar with appropriate preservatives and may select that which provides the

required product stability. Preservatives are preferably employed in amounts ranging from about 0.0001% to 2% by weight of the composition.

Emollients can be desirably incorporated into the cosmetic compositions of the invention to provide lubricity to the formulation. Suitable emollients may be in the form of volatile and nonvolatile silicone oil, highly branched hydrocarbons and synthetic esters. Amounts of emollients may be in the range of about 0.1-30 wt%, and preferably about 1-20 wt%. By way of example only, suitable silicones include cyclic or linear polydimethylsiloxanes, polyalkylsiloxanes, polyalkylarylsiloxanes and polyether siloxanes. By way of example only, suitable ester emollients include alkenyl esters of fatty acids, polyhydric alcohols, such as ethyleneoxide mono and di-fatty acid esters, polyethyleneoxide and the like, ether-esters, such as fatty acid esters of ethoxylated fatty alcohols, wax esters, such as beeswax, spermaceti, myristyl myristate and stearyl stearate, and sterol esters such as cholesterol fatty acids.

A variety of oily emollients may be employed in the compositions of this invention. These emollients may be selected from one or more of the following classes:

1. Triglyceride esters such as vegetable and animal fats and oils. Examples include castor oil, cocoa butter, safflower oil, cottonseed oil, corn oil, olive oil, cod liver oil, almond oil, avocado oil, palm oil, sesame oil, squalene, Kikui oil and soybean oil;
2. Acetoglyceride esters, such as acetylated monoglycerides;
3. Ethoxylated glycerides, such as ethoxylated glyceryl monostearate;
4. alkyl esters of fatty acids having 10 to 20 carbon atoms, such as, methyl, isopropyl, and butyl esters of fatty acids, and including hexyl laurate, isohexyl laurate, isohexyl palmitate, isopropyl palmitate, decyl oleate, isodecyl oleate, hexadecyl stearate, decyl stearate, isopropyl isostearate, diisopropyl adipate, diisohexyl adipate, dihexyldecyl adipate, diisopropyl sebacate, lauryl lactate, myristyl lactate, and cetyl lactate;
5. Alkenyl esters of fatty acids having 10 to 20 carbon atoms, such as oleyl myristate, oleyl stearate, and oleyl oleate and the like;
6. Fatty acids having 10 to 20 carbon atoms, such as pelargonic, lauric, myristic, palmitic, stearic, isostearic, hydroxystearic, oleic, linoleic, ricinoleic, arachidic, behenic, and erucic acids and the like;
7. Fatty alcohols having 10 to 20 carbon atoms, such as, lauryl, myristyl, cetyl, hexadecyl, stearyl, isostearyl, hydroxystearyl, oleyl,

- ricinoleyl, behenyl, erucyl, and 2-octyl dodecanyl alcohols are examples of satisfactory fatty alcohols and the like; 8. Fatty alcohol ethers, such as ethoxylated fatty alcohols of 10 to 20 carbon atoms including the lauryl, cetyl, stearyl, isostearyl, oleyl, and cholesterol alcohols, having attached thereto from 1 to 50 propylene oxide groups; 9.
- 5 Ether-esters such as fatty acid esters of ethoxylated fatty alcohols; 10. lanolin and derivative, such as lanolin, lanolin oil, lanolin wax, lanolin alcohols, lanolin fatty acids, isopropyl lanolate, ethoxylated lanolin, ethoxylated lanolin alcohols, ethoxylated cholesterol, propoxylated lanolin alcohols, acetylated lanolin alcohols, lanolin alcohols linoleate, lanolin alcohols ricinoleate, acetate of lanolin alcohols ricinoleate, acetate of
- 10 ethoxylated alcohols-esters, hydrogenolysis of lanolin, ethoxylated hydrogenated lanolin, ethoxylated sorbitol lanolin, and liquid and semisolid lanolin absorption bases and the like; 11. Polyhydric alcohol esters, such as, ethylene glycol mono and di-fatty acid esters, diethylene glycol mono- and di-fatty acid esters, polyethylene glycol (200-6000) mono- and di-fatty acid ester, propylene glycol mono- and di-fatty acid esters,
- 15 polypropylene glycol 2000 monooleate, polypropylene glycol 2000 monostearate, ethoxylated propylene glycol monostearate, glyceryl mono- and di-fatty acid esters, polyglycerol polyfatty esters, ethoxylated glyceryl monostearate, 1,2-butylene glycol monostearate, 1,2-butylene glycol distearate, polyoxyethylene polyol fatty acid ester, sorbitan fatty acid esters, and polyoxyethylene sorbitan fatty acid esters are satisfactory
- 20 polyhydric alcohol esters; 12. Waxes such as beeswax, spermaceti, myristyl myristate, stearyl stearate; 13. Beeswax derivatives, e.g., polyoxyethylene sorbitol beeswax; 14. Vegetable waxes including carnauba and candelilla waxes; 15. Phospholipids such as lecithin and derivatives; 16. Sterol including cholesterol and cholesterol fatty acid esters; 17. Amides such as fatty acid amides, ethoxylated fatty
- 25 acid amides, solid fatty acid alkanolamides.

Humectants may be added to the composition to increase the effectiveness of the emollient, to reduce scaling, to stimulate removal of built-up scale and improve skin feel. By way of example only, suitable humectants include polyhydric alcohols, such as glycerol, polyalkylene glycols, alkylene polyols, their derivatives, propyleneoxide,

30 dipropyleneoxide, polypropyleneoxide, polyethyleneoxide, sorbitol, hydroxypropyl

sorbitol, hexylene glycol, 1,3-butylene glycol, 1,2,6-hexanetriol, ethoxylated glycerol, propoxylated glycerol and the like. The amount of humectant may be in the range of about 0.5-30 wt% and preferably between 1-15 wt%.

In topical skin care applications, a variety of active substances may be advantageously employed. by way of example, only suitable active agents which may be incorporated into the cosmetic composition include anti-aging active substances, anti-wrinkle active substances, hydrating or moisturizing or slimming active substances, depigmenting active substances, substances active against free radicals, anti-irritation active substances, sun protective active substances, anti-acne active substances, firming-up active substances, exfoliating active substances, emollient active substances, and active substances for the treating of skin disorders such as dermatitis and the like.

By way of example only, in the case of hydration, one or more moisturizers may be used, such as glycerin or urea, in combination with one or more precursor agents for the biosynthesis of structural proteins, such as hydroxyproline, collagen peptides, and the like.

By the way of example only, in case of slimming, at least on ketolytic agent or an alpha-hydroxyacid such as a salicylic acid or 5-n-octanoic acid may be used in combination with at least one liporegulating agent such as caffeine.

By way of example only, in the case of depigmentation, at least one keratolytic agent is used in combination with a depigmenting agent such as hydroquinone, tyrosinase inhibitor (koscic acid), kojic acid and sodium metabisulfite and the like.

By way of example only, in the case of protection against free radical agents, vitamin E (against  $\text{CO}_2$  radicals), superoxide dismutase (against  $\text{O}_2$  free radicals) and sugar and caffeine (against OH free radicals).

By way of example only, in the case of anti-aging, moisturizers, sunscreens, alpha-hydroxyacids, salicylic acid or surface restructuring agents may be used in combination with enzymes for the repair of DNA, vascular protective agents or phospholipids rich in oligoelements and polyunsaturated fatty acids.

By way of example only, in the case of anti-acne agents, keratolytics, such as salicylic acid, sulfur, lactic acid, glycolic, pyruvic acid, urea, resorcinol and N-acetylcysteine, and retinoids, such as retinoic acid and its derivatives may be used.

By way of example only, in the case of anti-inflammation, non-steroidal anti-inflammatory agents (NSAIDS) may be used, such as propionic acid derivatives, acetic acid, fenamic acid derivatives, biphenylcarboxylic acid derivatives, oxicams, including but not limited to aspirin, acetaminophen, ibuprofen, naproxen, benoxaprofen, flurbiprofen, fenbufen, ketoprofen, indoprofen, piroprofen, carprofen, and bucloxic acid and the like.

By way of example only, in the case of antibiotic and antimicrobials may be included in the composition of the invention. Antimicrobial drugs preferred for inclusion in compositions of the present invention include salts of  $\beta$ -lactam drugs, quinolone drugs, ciprofloxacin, norfloxacin, tetracycline, erythromycin, amikacin, triclosan, doxycycline, capreomycin, chlorhexidine, chlortetracycline, oxytetracycline, clindamycin, ethambutol, hexamidine isethionate, metronidazole, pentamidine, gentamicin, kanamycin, lineomycin, methacycline, methanamine, minocycline, neomycin, netilmicin, paromomycin, streptomycin, tobramycin, miconazole and amanfadine and the like.

By way of example only, in the case of sunscreen protection, suitable agents include 2-ethylhexyl p-methoxycinnamate, 2-ethylhexy N,N-dimethyl-p-aminobenzoate, p-aminobenzoic acid, 2-phenyl p-methoxycinnamate, 2-ethylhexyl octocrylene, oxybenzone, homomenthyl salicylate, octyl salicylate, 4,4'-methoxy-t-butylidibenzoylmethen, 4-isopropyl dibenzoylmethane, 3-benzylidene camphor, 3-(4-methylbenzylidene) camphor, titanium dioxide, zinc oxide, silica, iron oxide, and mixtures thereof and the like. The sunscreens disclosed therein have, in a single molecule, two distinct chromophore moieties which exhibit different ultra-violet radiation absorption spectra. One of the chromophore moieties absorbs predominantly in the UVB radiation range and the other absorbs strongly in the UVA radiation range. These sunscreens provide higher efficacy, broader UV absorption, lower skin penetration and longer lasting efficacy relative to conventional sunscreens. Generally,

the sunscreens can comprise from about 0.5% to about 20% of the compositions useful herein. Exact amounts will vary depending upon the sunscreen chosen and the desired Sun Protection Factor (SPF). SPF is a commonly used measure of photoprotection of a sunscreen against erythema.

- 5 By way of example only, in the case of sunless tanning agents include, dihydroxyacetone, glyceraldehyde, indoles and their derivatives, and the like.

- The composition may include cleansing surfactants. Cleansing surfactants are cationic, anionic, amphoteric or non-ionic surfactants which are water-soluble and produce a consumer-acceptable amount of foam. Non-ionic surfactants are well-known materials and have been used in cleansing compositions. Therefore, suitable non-ionic surfactants include, but are not limited to, compounds in the classes known as alkanolamides, block copolymers of ethylene and propylene, ethoxylated alcohols, ethoxylated alkylphenols, alkyl polyglycosides and mixtures thereof. In particular, the non-ionic surfactant can be an ethoxylated alkylphenol, i.e., a condensation product of an alkylphenol having an alkyl group containing from about 6 to about 12 carbon atoms in either a straight chain or branched chain configuration with ethylene oxide, the ethylene oxide being present in an amount equal to at least about 8 moles ethylene oxide per mole of alkylphenol. Examples of compounds of this type include nonylphenol condensed with about 9.5 moles of ethylene oxide per mole of phenol; dodecylphenol condensed with about 12 moles of ethylene oxide per mole of phenol; dinonylphenol condensed with about 15 moles of ethylene oxide per mole of phenol; octylphenol condensed with about ten moles of ethylene oxide per mole of phenol; and diisooctyl phenol condensed with about 15 moles of ethylene oxide per mole of phenol.

- A wide variety of acids, bases, buffers, and sequestrants can be utilized to adjust and/or maintain the pH and ionic strength of the compositions useful in the instant invention. Materials useful for adjusting and/or maintaining the pH and/or the ionic strength include sodium carbonate, sodium hydroxide, hydrochloric acid, phosphoric acid, sulfuric acid, acetic acid, sodium acetate, sodium hydrogen phosphate, sodium dihydrogen phosphate, citric acid, sodium citrate, sodium bicarbonate, triethanolamine, EDTA, disodium EDTA, tetrasodium EDTA, and the like.

The polymer network may be useful as a solubilization agent in cosmetic and personal care applications. A self-assembling system comprising the reversibly gelling polymer network exhibits thermogelation, pH sensitivity, and the ability to solubilize hydrophobic agents in aqueous media. When poloxamer is copolymerized with poly(acrylic acid) (PAA) according to the invention, the resulting copolymer network is bioadhesive and can be applied in a number of therapies. The materials described in this invention combine "reverse" thermoviscosification mucoadhesion, solubilization of hydrophobic and difficult to manage moieties, easy formulation, and protection of agents from degradation to provide a superior medium for cosmetic and personal care products.

The reversible viscosification of the polymer network at elevated temperatures makes the materials idea for use as thickening agents in cosmetic and personal care products at any temperature above the transition. Another use of the "thickening" of solutions containing the polymer network as a thickener supplement in emulsions. Currently, emulsifiers are often negatively affected by increased temperatures. An additive with reverse thermal viscosification properties, however, would react in exactly the opposite way, increasing its ability to emulsify as it gained three-dimensional structure upon heating above its transition temperature.

In the applications where the reversibly gelling polymer composition can act as a surfactant, the polymer network will have the ability to act as a primary emulsifier without any (or with very little) addition of traditional surfactant. The responsive polymer network will also act as a stabilizer for oil soluble ingredients that would conventionally need to be solubilized by oils in formulation. The hydrophobic portion of the polymer network (PPO) forms domains which act as reservoirs for an oil-soluble or hydrophobic additive, such as an oil droplet, as is illustrated in Figure 9. These two features of the material of the invention would enable it to be used as a base in a cosmetic formulation that would be non-greasy due to lack of oils, such as petrolatum and mineral oil. The increase in viscosity above the transition temperature adds structure and yield value to the water phase and results in a highly stable emulsion.



Thus, poloxamer:poly(acrylic acid) polymer network compositions are valuable materials in the formulation of cosmetic and personal care products. In particular, they may be useful as rheology modifiers, provide a cushioning effect on the skin, offer barrier properties and controlled release of actives. In addition, the polymer composition may serve as a surfactant and is compatible with most ingredients used in the cosmetic industry.

The above properties of the poloxamer:poly(acrylic acid) polymer network provides a cosmetic composition that spreads evenly and smoothly and which leaves a lubricious feel to the skin. A sensory evaluation was conducted with seven random volunteers in order to determine the sensory effect of a cream formulation on the skin. An oil-free cosmetic formulation was prepared substantially as set forth in Example 33(b) and was compared to Nivea Oil Free, a product of Beiersdorf of Germany. Volunteers placed unmarked samples on the skin and evaluated the formulation based upon its feel and texture. The samples were rated on a scale of 1 (bad) to 5 (good). The oil-free cosmetic formulation of the present invention scored equally to the Nivea Oil Free moisturizing product. Both samples scored a 3.5 on the rating scale.

The observed thermal behavior of the reversibly gelling polymer network suggests that the increase in viscosity is due to aggregation of the hydrophobic portion of the poloxamer at the transition temperature which, because of bonding with the poly(acrylic acid) component, serve as temporary cross-links which physically bridge adjacent chains of poly(acrylic acid) to provide a viscous gel-like extended polymer structure. The aggregation process may be understood as occurring as shown in Figure 10, in which a backbone 20 represent poly(acrylic acid), a thin band 24 represents the hydrophobic poly(propylene) glycol region of the poloxamer and a thick band 26 represents the hydrophilic poly(ethylene glycol) region of the poloxamer. Below the transition temperature, the polymer network is randomly arranged, as is shown in Figure 10(a). At or above the transition temperature, the hydrophobic regions 24 associate to form aggregations or micelles 28, as is shown in Figure 10(b). The association increases the effective molecular weight of the polymer network composition with the corresponding increase in viscosity.

A general method of making the poloxamer:PAA polymer network compositions of the present invention comprises solubilization of the poloxamer in acrylic acid monomer, followed by polymerization of the monomer to PAA. Polymerization may be accomplished by addition of a polymerization initiator or by irradiation techniques.

5 The initiator may be a free radical initiator, such as chemical free radical initiators and UV or gamma radiation initiators. Conventional free radical initiators may be used according to the invention, including, but in no way limited to ammonium persulfate, benzoin ethyl ether, benzyl peroxide, 1, 2'-azobis(2,4-dimethylpentanitrile) (Vazo 52) and azobisisobutyronitrile (AIBN). Initiation may also be accomplished using cationic

10 or ionic initiators. many variations of this method will be apparent to one skilled in the art and are contemplated as within the scope of the invention. For example, the poloxamer component may be dissolved in an acrylic acid/water mixture instead of pure monomer. It may be desirable to remove unreacted monomer and/or free poloxamer from the resultant polymer network. This may be accomplished using conventional

15 techniques, such as, by way of example, dialysis or Soxhlet extraction.

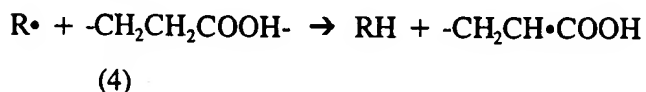
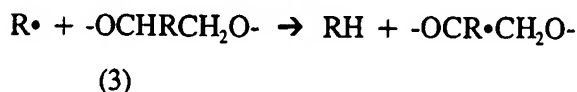
Without intending to be bound by a particular mechanism or structure, the following scheme represents a possible chemical mechanism for the formulation of the system here described. These mechanisms are presented by way of explanation and are no way limiting of the invention. It is contemplated that these or other mechanistic

20 routes may in fact occur in the formation of the polymer network of the present invention.

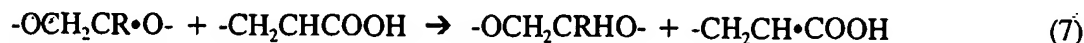
#### I. Initiation



#### 25 II. Hydrogen Abstraction



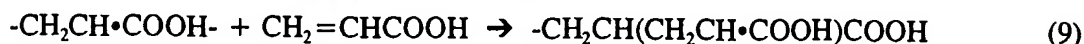
#### 30 III. Chain Transfer



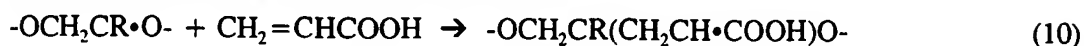
#### IV. Propagation



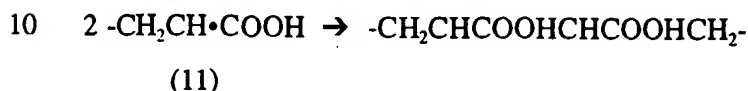
#### 5 V. Side Chain Branching Off AA Backbone



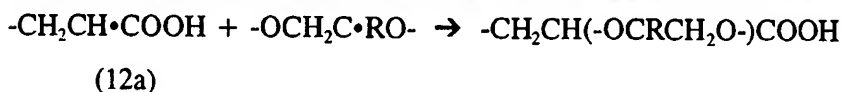
#### VI. AA Branching Off Poloxamer Backbone



#### VII. Homogenous Termination



#### VIII. Heterogenous Termination with Bonding of Pluronic to PAA



15

The scheme for bonding of poloxamer to acrylic acid may involve initiation (Eq. 1), hydrogen abstraction from the propylene or ethylene moiety of the poloxamer (Eq. 3), and attachment to acrylic acid via addition across the unsaturated bond (Eq. 10). Propagation (Eq. 8) leads to the final PAA.

20

Alternatively, the mechanism may proceed by initiation according to Eqs. (1) and (2), propagation to form PAA (Eq. 8), a chain transfer reaction to generate a reactive poloxamer moiety (Eq. 5), followed by addition of the reactive poloxamer moiety to the unsaturated bond of acrylic acid (Eq. 10) and subsequent propagation of the PAA chain.

25

Thus, the polymer network may include a plurality of poly(acrylic acid) units bounded to a single poloxamer unit, or alternatively, a plurality of poloxamer units bound to a single PAA backbone. Combinations of these alternatives are also a possibility.

Reverse phase polymerization may be used to prepare polymer network beads  
30 by dispersion of the poloxamer and acrylic acid monomer mixture in a nonpolar solvent

such as hexane or heptane. The aggregating polymer/monomer solution is dispersed with agitation in the nonpolar solvent in order to suspend droplets of the solution. Polymerization of the monomer is initiated by conventional means (i.e., addition of an initiator or irradiation) in order to polymerize the monomer and form responsive polymer network beads. See U.S.S.N. 08/276,532 filed July 18, 1995 and entitled "Useful Responsive Polymer Gel Beads" for further information on the preparation of polymer gel beads, herein incorporated by reference. Such a method may be particularly desirable to provide a heat sink for the heat generated in the exothermic polymerization reaction.

10       The polymer network complexes and aqueous gelling solutions of the present invention may be understood with reference to the following examples, which are provided for the purposes of illustration and which are in no way limiting of the invention.

15       Example 1. This example describes the synthesis of a polymer network and an aqueous responsive polymer network solution prepared using a triblock polymer of poly(ethyleneoxide) and poly(propyleneoxide), Pluronic® F27 polyol, and poly(acrylic acid). This example also characterizes the gelation and the physical properties of the resultant polymer network.

20       Synthesis. Block copolymer of poly(propyleneoxide) (PPO) and poly(ethyleneoxide) (PEO) having triad ABA structure  $(\text{PEO})_A(\text{PPO})_B(\text{PEO})_A$  (Pluronic® F127 NF polyol, Poloxamer 407 NF polyol, where "F" means Flakes, "12" means  $12 \times 300 = 3600$  - MW of the PPO section of the block copolymer, "7" PEO in the copolymer is 70 wt%, and nominal molecular weight is 12,600) from BASF (3.0 g) was dissolved in 3.0 g acrylic acid (Aldrich). This represents a substantially 1:1 weight ratio of Pluronic® F127 polyol and poly(acrylic acid). The solution was deaerated by  $\text{N}_2$  bubbling for 0.5 h and following addition of 100 ml of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer.

25       Viscosity measurements. A known amount of the resultant polymer was  
30       suspended in 100 ml deionized water into which NaOH was added. Following swelling

for 3 days while stirring, the pH of the resulting fine suspension was adjusted to 7. Samples of 15 ml each were taken, and pH in each vial was adjusted to desired value by addition of 1 M HCl or NaOH. Samples were then kept overnight and their viscosities were measured at different temperatures using Brookfield viscometer using either an  
5 SC4-18 or an SC4-25 spindle.

A control experiment was done with a physical blend of Pluronic® F127 polyol and poly(acrylic acid) (MW 450,000) available from Aldrich. Pluronic® F127 polyol and poly(acrylic acid) were dissolved together in deionized water at 1 wt% total polymer concentration and the resultant solution was adjusted to pH 7, stirred and kept  
10 in refrigerator. The responsiveness of the polymer network composition and the physical blend to temperature and pH is illustrated in figs. 1, 11, and 12. Figs. 1 and 2 clearly demonstrate that the synthetic route outlined above resulted in a polymer network system that is sensitive to pH and temperature of the environment. Note that the liquid-gel transition is very sharp, occurring over a very small temperature change  
15 of pH (see Figure 11). Figure 12 is a viscosity vs. temperature graph comparing the gelling characteristics of the responsive polymer network composition and the physical blend. The blend prepared by physically mixing the triblock PEG/PPG/PEG polymer and poly(acrylic acid) did not exhibit viscosifying effect either as a function of temperature or pH.

20 It was generally observed that 0.5 - 5 wt% polymer network compositions made of Pluronic® F127 polyol and poly(acrylic acid) viscosify at temperatures of around 30°C and higher if pH is adjusted to 6 or higher. The gelling effect was observed in polymer network compositions standing 3 months or longer. Repeated heating and cooling of responsive polymer network compositions did not cause deterioration of the  
25 polymer network or the gelling effect. Solutions of either Pluronic® F127 polyol or poly(acrylic acid) (1-5 wt% in water, adjusted to pH 6 or higher) or physical blends of the two lacked the reverse thermal gelling effects found for polymer network compositions.

Example 2. this example describes a standard operating procedure for the  
30 manufacture of the reversible gelling polymer network.

The procedure is based upon a 50 liter production. A NaOH solution was prepared by dissolving 131.8 g NaOH pellets in 131.8 mL DI water (50% solution). The NaOH was allowed to dissolve completely. The NaOH solution will be used to convert a percentage of the acrylic acid to sodium acrylate in situ. Acrylic acid monomer (4 kg) is charged into a monomer feed tank and agitated at 250 rpm. NaOH is added slowly. The precipitate formed as the acrylic acid is neutralized to sodium acrylate is allowed to dissolve. Pluronic® F 127 (3.5 kg) is slowly added to the monomer feed tank. Pluronic® F127 is dissolved under continued agitation. Norpar 12 (a refined C-12 alkane) is added to the reaction vessel (37 L). The mixture is agitated at 100 rpm. Stabilizer solution of Ganex V-126 is prepared in 2L Norpar 12 and added to the reactor under agitation.

A reaction vessel was degassed using a nitrogen sparge introduced from the bottom of reactor and was continued throughout the reaction. Initiator (13.63 g Lauryl peroxide and 4.23 g Vazo 52 in 0.7 kg acrylic acid monomer) is introduced into the monomer solution. the monomer solution was transferred to the reaction vessel. Agitation was increased to 150 rpm. Nitrogen sparging continued for an additional 20 minutes, and then heating began. heating began at a rate of 0.5 -1.0°C/min up to 75°C. The reaction began to exotherm at about 45-50°C and is allowed to continue without cooling until a maximum is reached. It is then cooled to 75°C using forced cooling. The reaction continued for 12 hours and was then cooled to 35°C. The slurry was transferred into pails and the polymer beads were allowed to settle.

The slurry was filtered through Buchner Funnels with filter paper (11 µm pore size) until the bulk of the Norpar had been removed from the beads. The beads were washed three times with heptane. The filtered beads were transferred to a Pyrex drying tray and spread on the tray in a uniform layer. The beads were dried under vacuum for 4 hours at 40-50°C. The dried beads were analyzed as follows.

Elemental analysis. The elemental analysis was performed by Quantitative Technologies, Inc., Whitehouse, NJ using a Perkin Elmer 2400 CHN Elemental Analyzer. Analysis provided C (52.49%), H (7.50%), N (<0.05%), the balance assumed to be oxygen (39.96%).

Thermal Gravimetric Analysis (TGA). The TGA method was performed by Massachusetts Material Research, Inc., West Boylston, MA using a Dupont TGA model 295. The assay was run using a temperature ramp from 30 to 500°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The data was analyzed using the first derivative of the curve and using maxima and minima to mark transitions. The moisture content was also calculated in this manner. The first derivative yielded three maxima. The first transition (moisture) was 3.0% by weight, the second transition was 14.0% by weight, and the third was 67.02% by weight. Residue (15.98%) remained.

Molecular weight determination by gel permeation chromatography (GPC). The molecular weight was determined by GPC on a Hewlet Packard 1100 Liquid Chromatography system with a Viscotech T60 Triple Detector system. Three Waters Ultrahydrogel columns, 1000, 500 and 250 Å, were used for the separation. The mobile phase was 0.1 M NaNO<sub>3</sub> and 0.01 M K<sub>2</sub>HPO<sub>4</sub> salt solution, pH adjusted with phosphoric acid to a pH of 8.0 ± 0.1. the flow rate for the separation was 0.9 mL/min. The column temperature was maintained at 15°C. The injection volume for the assay was 50 µL. A PEG molecular weight standard of 23,000 Daltons was used to align the detectors. The result for the assay were:

M<sub>n</sub>: 341,700 Daltons

M<sub>p</sub>: 1,607,000 Daltons

M<sub>w</sub>: 2,996,000 Daltons

Free poloxamer determination by GPC. The amount of free (unbound) poloxamer in the polymer matrix was determined using the above GPC method and comparing the poloxamer peaks to that of a standard poloxamer solution. The typical result is approximately 18-22% free poloxamer by weight.

The effect of both the bonded and non-bonded poloxamer on the gelation properties of the responsive polymer network has been determined by extraction of the non-bonded poloxamer from the material. Such extraction studies have established that the graft co-polymer alone exhibits the characteristic reverse thermal gelation of the composition; however, the presence of non-bonded poloxamer component modulates

the gelation process. The non-bonded poloxamer component can affect the temperature of transition (from liquid to gel) and the degree of transition and assists in a more controlled and reproducible transition.

Bound poloxamer determination by ethylene oxide (EO) titration. The EO titration was performed as follows. A 5 gm sample of the product polymer was extracted in dichloroethane for three hours at reflux temperatures. The solid is removed and dried under a vacuum for 12 hours at room temperature. The dry material is then analyzed using ASTM method D 2959-95, "Standard Test Method for Ethylene Oxide Content". The amount of EO in the sample is related to the amount of poloxamer bound to the polymer. The typical result is approximately 15% by weight of EO.

The relative amount of free poloxamer may be varied dependent upon the relative proportions of starting materials and the method of polymerization. Although the residual solids presumably contain only poloxamer which is bounded to the poly(acrylic acid), i.e., a graft co-polymer, the material still shows strong viscosification when it is neutralized and dissolved in water. However, the temperature of viscosification is increased substantially and the degree of viscosification per gram of total solids is increased by removal of free poloxamer. Thus, the free poloxamer plays a role in modifying the extent and temperature of viscosification. The poloxamer undergoes conformational changes and changes to the critical micelle concentration as a function of temperature. The poloxamer will change from an open, non-aggregated form to a micellular, aggregated form with changes in temperature.

Residual acrylic monomer determination by gas chromatography (GC). The residual acrylic acid monomer was determined by GC analysis using a Hewlet Packard GC 5890A, using a HP-FFDAP-TPA 10 m x 0.52 mm x 1  $\mu$ m column. The sample was extracted and run in methanol. Using an internal standard ratio, the sample was compared to a one point calibration. The typical results for this assay were below 70 ppm acrylic acid monomer.

Residual Norpar solvent by GC. The residual Norpar in the sample was determined by GC using the above method and comparing the Norpar peaks to that of a standard. The typical results were below 1.5 wt%.



UV-vis spectrum. Optical clarity data of UV-vis spectrophotometer was obtained. A 1.0% solution in water was prepared and measured at 420 nm.

Transmittance (%) was typically greater than 90%.

- Differential scanning calorimetry (DSC). The DSC was performed by
- 5 Massachusetts Material Research, Inc., West Boylston, MA using a temperature ramp from 30 to 350°C at 5°C/min. The resolution for the system was set to 4 (1.0°C/min for all slope changes). The assay yielded one endothermic event at 265°C, typically 270 J/g.

- Examples 3-9. These examples describe the synthesis of several reversible
- 10 thermal gelling polymer networks prepared using a variety of poloxamers and poly(acrylic acid). The gelation and the physical properties of the resultant polymer network compositions are reported in Table 2.

Table 2

Example	Poloxamer	Poloxamer Composition	Polox- amer: PAA	Trans. Temp.	Comments	
15	3	Pluronic® F88 Prill polyol	2400 MW PPO; 80 wt% PEO; nominal MW 11,400	1:1	48°C	viscosity response curve shown in Figure 13
	4	Pluronic® F127 NF polyol	3600 MW PPO; 70 wt% PEO; nominal MW 12,600	1:1	30°C	pentaerythritol triallyl ether crosslink agent used
	5	Pluronic® P104 polyol	3000 MW PPO; 40 wt% PEO; nominal MW 5,900	1:1	28°C	viscosity response curve shown in Figure 14
	6	Pluronic® P123 polyol	3600 MW PPO; 30 wt% PEO; nominal MW 5,750	1:1	25°C	viscosity response curve shown in Figure 15
	7	Pluronic® F127/ Pluronic® F108 polyol blend (1:1)	as above	1:1.7	42°C	polymer solid formed, dried; resolubilized in neutralizing solution
20	8	Pluronic® F88 polyol	as above	1:1.7	80°C	polymer solid formed, dried; resolubilizing in neutralizing solution
	9	Pluronic® F127/ Pluronic® F88 polyol blend (1:1)	as above	1:1.7	85°C	polymer solid formed, dried; resolubilizing in neutralizing solution

Example 10. The following example demonstrates the effect of hydrophilic/hydrophobic ratio on the gelling temperature. Polymer network compositions were prepared from the following poloxamers shown in Table 3.

**Table 3. Composition of Poloxamers Investigated.**

triblock polyol polymer composition	MW of PPO block	wt% of PEO block
P103 (PEO) <sub>37</sub> (PPO) <sub>56</sub> (PEO) <sub>37</sub>	3250	50
P104 (PEO) <sub>25</sub> (PPO) <sub>56</sub> (PEO) <sub>25</sub>	3250	40
P105 (PEO) <sub>16</sub> (PPO) <sub>56</sub> (PEO) <sub>16</sub>	3250	30

Table 3 shows that in this series, the fraction of PEO is reduced when the molecular weight of the PPO block is kept constant. Linse (*Macromol.* 26:4437-4449 (1993)) report phase diagrams for these copolymers in water were calculated and it was shown that two-phase boundaries corresponding to the beginning of aggregation are almost unaffected by the molecular mass, given a constant PEO/PPO ratio, whereas these boundaries shifted to lower temperature as the PEO content of the polymer is reduced at constant mass. The strong dependence of the PEO/PPO ratio is a consequence of the differing solubilities of PEO and PPO in water at the elevated temperatures. Thus, one would suppose that aggregation that causes viscosification in the responsive polymer network composition should shift to lower temperature as PEO fraction decreases.

The poloxamer (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N<sub>2</sub> bubbling for 20 min. and following addition of the 100:1 of freshly prepared saturated solution of ammonium persulfate in deionized water was kept at 70°C for 16 h resulting in a strong whitish polymer. A sample of the polymer obtained (0.4 g) was suspended in 40 ml deionized water into which NaOH was added. Suspended responsive polymer network particles were allowed to dissolve under constant stirring. The resulting 1 wt% polymer network solution were subjected to the

viscosity measurement at shear rate of 132 or 13.2 sec<sup>-1</sup> using a SC4-18 spindle. It can be seen from Figure 16 that, firstly, viscosity of the 1 wt% responsive polymer network solutions before viscosification (at 20-24°C) decreases in the series

(PEO)<sub>37</sub>(PPO)<sub>56</sub>(PEO)<sub>37</sub>(F103) > (PEO)<sub>25</sub>(PPO)<sub>56</sub>(PEO)<sub>25</sub>(F104) >

- 5 (PEO)<sub>16</sub>(PPO)<sub>56</sub>(PEO)<sub>16</sub>(F105) and, secondly, the temperature at which gelation shifts from about 45°C for (PEO)<sub>37</sub>(PPO)<sub>56</sub>(PEO)<sub>37</sub> to about 35°C for (PEO)<sub>25</sub>(PPO)<sub>56</sub>(PEO)<sub>25</sub> and (PEO)<sub>16</sub>(PPO)<sub>56</sub>(PEO)<sub>16</sub>. Both results are in excellent agreement with the theory set forth in Linse.

- Example 11. The following example is related to release of and active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein hemoglobin from poloxamer:poly(acrylic acid) polymer network is described.

- Synthesis. Pluronic® F127 (3.0 g) was dissolved in 3.0 g acrylic acid. The solution was deaerated by N<sub>2</sub> bubbling for 0.5 h and following addition of 100 Fl of freshly prepared saturated solution of ammonium persulfate (Kodak) in deionized water was kept at 70°C for 16 h resulting in a transparent polymer. The resultant responsive polymer network obtained (5 g) was suspended in 95 ml deionized water into which NaOH was added. The resulting suspension was allowed to swell for 7 days.

- Hemoglobin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 0.25 mg/ml solution of human hemoglobin (Sigma) in deionized water adjusted to pH 8. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the hemoglobin-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 0.25 mg/ml hemoglobin solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples of the receiver phase was withdrawn from time

to time and their absorbance was measured spectrophotometrically at 400 nm. To calculate hemoglobin concentrations, corresponding calibration curves (absorbance in PBS versus hemoglobin concentration) were generated. The results of the kinetic experiment are presented in Figure 17. It can be seen that the rate of hemoglobin release from the polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in the polymer network at elevated temperatures (see Figure 1). The protein released from the polymer network composition still retained its native structure, as was determined by comparison of UV-vis spectra of release hemoglobin and natural hemoglobin.

Example 12. The following example is related to release of an active agent from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of the protein lysozyme from a polymer network is reported.

Lysozyme loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 16 h in 10 ml of 1 mg/ml solution of chicken egg-white lysozyme (Sigma) and 1.5 mg/ml sodium dodecyl sulfate (Aldrich) in deionized water adjusted to pH 8.5. The resulting mixture was well shaken and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. The cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the lysozyme-loaded responsive polymer network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 1 mg/ml lysozyme solution. After the feed solution had been loaded into the cell, the kinetic time commenced. Samples were withdrawn and their absorbance measured spectrophotometrically at 280 nm. A calibration curve was prepared for lysozyme concentration ranging from 0 mg/ml to 0.5 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 18. It can be seen that the rate of lysozyme release from the responsive polymer network composition was substantially lowered at 37°C when

compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

In order to demonstrate the retention of the enzymatic activity of lysozyme, the lysozyme released from the responsive polymer network composition was assayed using  
5 Micrococcus lysodeikticus cells and compared to that of original lysozyme. The enzymatic activity of lysozyme was the same, within the error of the assay (15%), as that of the original lysozyme. Control without lysozyme in presence of sodium dodecyl sulfate did not show any appreciable lysis of the cells.

Example 13. The following example is related to release of an active agent  
10 from a poloxamer:poly(acrylic acid) polymer network. Drug loading and kinetics of release of insulin from a responsive polymer network composition is reported.

Insulin loading and release. A 5 wt% responsive polymer network composition (3 g) was allowed to swell for 15 h in 10 ml of 5 mg/ml solution of bovine Zn<sup>2+</sup>-insulin (Sigma) in deionized water adjusted to pH 7. The resulting mixture was well shaken  
15 and placed into the feed chambers of customized vertical, static, Franz-like diffusion cells made of Teflon. The feed and receiver chambers of the diffusion cells were separated by mesh screens (#2063). The receiver chamber was continuously stirred by a magnetic bar. the cells were allowed to equilibrate to either 25 or 37°C (in an oven). The feed and receiver phases consisted of 1 g of the insulin-loaded responsive polymer  
20 network and 6 ml of phosphate-buffered saline (pH 7.4), respectively. In the control experiment, the feed phase was made of 1 g of 5 mg/ml insulin solution. After the feed solution had been loaded into the cell, the timing commenced. Samples were withdrawn and their absorbance was measured spectrophotometrically at 280 nm. A calibration curve was prepared for insulin concentration ranging from 0 mg/ml to 1.25  
25 mg/ml in phosphate buffered saline. The results of the kinetic experiment are presented in Figure 19. The rate of insulin release from responsive polymer network was substantially lowered at 37°C when compared to that at 25°C, because of viscosity increase in responsive polymer network at elevated temperatures (see Figure 1).

Example 14. This example demonstrates the preparation of a sterile reversibly  
30 gelling polymer network aqueous composition and the stability of the composition to

sterilization. The polymer network is prepared as described in Example 1, except that the composition is prepared at 2 wt% Pluronic® F127 polyol/poly(acrylic acid). After dissolution of the 2 wt% polymer network in water, the viscosity is measured. The composition then is sterilized by autoclaving at 121°C, 16 psi for 30 minutes.

- 5 Viscosity is determined after sterilization. The corresponding curves for viscosity (a) before and (b) after sterilization are shown in Figure 20 and establish that minimal change in the viscosity profile of the material has occurred with sterilization.

Examples 15-30. These examples show additives which may be used to affect the transition temperature overall viscosification of the polymer network composition.

- 10 A 1 wt% polymer network was prepared in deionized water at pH 7 in which a variety of additives were included in the composition. The effect of the additive was determined by generation of a Brookfield viscosification curve. Results are reported in Table 4.

**Table 4.**

Example No.	Additive (wt%)	Effect of additive on:	
		Transition Temp. (°C)	Final Viscosity (% change)
15	1,2-methyl pyrrolidone (5)	I (1.8)	N
16	Rhodapex CO-436 (2)	I (1.6)	N
17	Dow Corning 190 (2)	I (5)	I (150)
18	isopropyl alcohol (0.5)	I (3.1)	I (45)
20	Pluronic® L122 (1)	D (4.4)	D (13)
20	Pluronic® F88 (1)	N	I (41)
21	Tween 80 (0.5)	N	I (18)
22	Germaben® II (1)	D (9)	I (100)
23	Iconol NP-6 (1)	D (9)	I (500)
25	Plurafac C-17 (0.5)	I (5.2)	D (36)
25	Dow Corning 193 (0.75)	I (4.1)	D (12)
26	glycerin (5)	D (2)	N-

Example No.	Additive (wt%)	Effect of additive on:	
		Transition Temp. (°C)	Final Viscosity (% change)
27	UC 50-HB 170/EO/PO random copolymer (0.5)	N	N
28	PVP K15 (1)	N	N
29	MAPTAC (1)	N	D (8)
30	potassium chloride (0.25)	N	D (34)

5

I = increase; D = decrease; and N = no change

Example 31. Because of the surfactant nature of the polymer network composition coupled with the gelation effect of the polymer network composition, it is possible to prepare formulations which are 100% water-based, but which are lubricous and thick.

10

Formulations including a nonionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 5.

15

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Emulsifying Wax NF <sup>1</sup>	2.5
Mineral Oil	5.0

20

<sup>1</sup> Polowax available from Croda

Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains a nonionic surfactant and gives an emulsion that is fluid at room temperature but viscosifies above 32°C.

25

Formulations including a cationic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 6.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Behentrimonium Methosulfate (and) Cetearyl alcohol <sup>1</sup>	2.5
Mineral Oil	5.0

<sup>1</sup>Incroquat Behenyl TMS available from Croda

5  
10 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added and allowed to mix to homogeneity. This formulation contains a cationic surfactant and gives an emulsion that is fluid at room temperature but viscifies above 32°C.

15 Formulations including an anionic surfactant formulation: An O/W (oil-in-water) emulsion was made by combining the following ingredients utilizing conventional mixing techniques:

Table 7.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Cetearyl Phosphate (and) Cetearyl alcohol <sup>1</sup>	2.5
Mineral Oil <sup>1</sup>	5.0

<sup>1</sup>Crodafos CES available from Croda

20  
25 Into a vessel equipped with a high efficiency homogenizer, the formula amount of all ingredients is added, water is added to 100% w/w and allowed to mix to homogeneity. This formulation contains an anionic surfactant and gives an emulsion that is fluid at room temperature but viscifies above 32°C.

30 Example 32. Acne Medication: An oil-free, clear, anti-acne treatment is made by combining the following ingredients utilizing conventional mixing techniques:

Table 8.



Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
Salicylic Acid	2.0
DL-Panthenol	0.5
Germaben® II <sup>1</sup>	0.1
Disodium EDTA	0.2
USP Purified Water	72.2

<sup>1</sup>Germaben® II available from Sutton Laboratories

To one vessel, equipped with a Lightnin' Mixer with a 3 blade paddle prop, the full amount of USP Purified Water to 100% w/w is added. While maintaining the temperature, with moderate to vigorous mixing, the formula amount of Disodium EDTA, Citric Acid, DL-Panthenol, Glycerin, Salicylic Acid, and Germaben® II is added. These materials are allowed to dissolve at 50°C. After dissolution, the vessel is then cooled to 20°C. To another vessel, equipped with a high efficiency homogenizer, the formula amount of responsive polymer network is added. The responsive polymer network vessel is then cooled to 4°C. After cooling, while vigorously homogenizing, the contents of the first vessel is added to the second vessel, and allowed to mix to homogeneity.

The composition displays a flowable clear jelly appearance with excellent spreadability and absorption characteristics at room temperature, and after heating the formulation to 32°C, the composition thickens to a gel-like consistency.

**Example 33. (a) Oil-free Moisturizer (formulation I):** An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 9.

Ingredient	% w/w
10 % wt. 1:1 responsive polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
PPG-2 Myristyl Ether Propionate	3.0
DL-Panthenol	0.5
Germaben® II <sup>1</sup>	0.1
Disodium EDTA	0.2
Citric Acid	0.01
USP Purified Water	71.19

<sup>1</sup>Germaben® II available from Sutton Laboratories

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The viscosity vs. temperature curve is shown in Figure 21 and demonstrates that addition of adjuvants to the composition significantly enhances the responsive polymer network maximum viscosity (> 900,000 cps). The use of the poloxamer:poly(acrylic acid) polymer network in the formulation also imparts a unique viscosification effect after application to the skin, which is not evident in typical commercial O/W emulsion formulations (See Figure 21b).

(b) Oil-free Moisturizer (formulation II): An oil-free, lubricous moisturizer was made by combining the following ingredients utilizing conventional mixing techniques:

Table 10.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	20.0
Glycerin USP	5.0
Carbopol 980	1.0

Ingredient	% w/w
D-Panthenol, propylene glycol	1.0
Preservative	1.0
Hydrolyzed protein (and) hyaluronic acid	0.5
Sodium hydroxide	0.2
USP Purified Water	90

The above ingredients were added and processed as described above for the  
 10 acne composition. The composition displayed a flowable creamy lotion appearance  
 with excellent emolliency, spreadability and absorption characteristics at room  
 temperature. After heating the formulation to above 26°C, the composition thickened  
 to a gel-like consistency. The addition of adjuvants to the composition significantly  
 enhances the polymer network maximum viscosity.

15 Example 34. Sunscreen Lotion. An oil-free, lubricous sunscreen lotion was  
 made by combining the following ingredients utilizing conventional mixing techniques:

Table 11.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	2.0
Glycerin USP	8.0
Carbopol 980	1.0
Parsol MCX	7.0
Myristyl Ether Propionate	5.0
25 Preservative	1.0
Cyclomethicone	1.0
Sodium hydroxide	0.2
USP Purified Water	74

30 The above ingredients were added and processed as described above for the  
 acne composition. The composition displayed a flowable creamy lotion appearance

with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

- 5        Example 35. Facial mask. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 12.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	1.0
Polyvinyl alcohol	6.0
Polyvinylpyrrolidone (20%)	5.0
D-panthenol, propylene glycol	1.25
Propylene glycol	1.25
USP Purified Water	85.5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

- 25        Example 36. Facial toner. A face mask was made by combining the following ingredients utilizing conventional mixing techniques:

Table 13.

Ingredient	% w/w
1:1 polymer network as prepared in Example 1	0.01
Hydroxyethyl cetyltrimonium phosphate	1.00
PEG-40 hydrogenated castor oil	2.00

Ingredient	% w/w
D-panthenol, propylene glycol	0.50
Glycerin	2.00
Witch hazel extract	5.00
USP Purified Water	88.49

5

The above ingredients were added and processed as described above for the acne composition. The composition displayed a flowable creamy lotion appearance with excellent emolliency, spreadability and absorption characteristics at room temperature. After heating the formulation to above 26°C, the composition thickened to a gel-like consistency. The addition of adjuvants to the composition significantly enhances the polymer network maximum viscosity.

Example 36. Solubilization studies of model hydrophobic agents in the poloxamer:poly(acrylic acid) polymer network: estradiol and progesterone. This example is presented to demonstrate the solubilization of a hydrophobic agent in the polymeric network. Progesterone and estradiol were used as the hydrophobic agents in this model solubilization study.

Acrylic acid (99%), fluorescein (98%),  $\beta$ -estradiol (98%), and progesterone (98%) were all obtained from Aldrich and used as received. Pluronic® F127 NF was obtained from BASF. Poly(oxyethylene-b-oxypropylene-b-oxyethylene)-g-poly(acrylic acid) copolymers (responsive polymer network) were synthesized by free-radical polymerization of acrylic acid in the presence of poloxamer as described above. The polymer network copolymers discussed here were composed of about 1:1 ratio of PAA to poloxamer. The rheological properties of polymer network were assessed using LVDV-II+ and RVDV-II+ Brookfield viscometers. The microscopic light scattering of 21 nm poly(styrene) latex particles in deionized water and 1 wt% reversibly gelling polymer network was measured using He-Ne laser as described previously (see Matsuo, E.S., Orkisz, M., Sun, S.-T., Li, Y., Tanaka, T., Macromolecules, 1994, 27, 6791). The solubility of fluorescein and hormones in aqueous solutions was measured by the equilibrium of excess solubilize with the corresponding solution following

removal of undissolved species by centrifugation and filtration. Hydrophobic agents were assayed spectrophotometrically at 240 (progesterone) or 280 nm (estradiol), or by using 70/30 w/w H<sub>2</sub>SO<sub>4</sub>/MeOH (Tsilifonis-Chafetz reagent). In vitro hormone release studies were conducted using thermostated, vertical Franz cells. Spunbonded polypropylene microfilters (micron retention, 15-20) were used as a membrane separating feed and receiver phases in Franz cells. The responsive polymer network, water, ethanol, and 20% PEG in water were observed to wet the membrane. The receiver solution consisted of 20 w% PEG in water (pH 7) and were stirred by magnetic bars. The feed phases composed of responsive polymer network were loaded with either estradiol or progesterone. Each hormone was dissolved in ethanol and the resulting solution was added into the responsive polymer network.

Equilibrium solubility vs. temperature plots for estradiol and progesterone (partition coefficient octanol/water (P) 7200 and 5888, respectively), in aqueous solutions of Pluronic® F127 polyol and responsive polymer network are presented in Figure 22. It can be seen that increasing temperature and concentration (C) of polymers in the solution raises the amount of the hormone dissolved. In Figure 22a, vertical lines represent critical micellar temperatures (CMT) for corresponding Pluronic® F127 polyol solutions. It is interesting to note that the slope of the solubility-temperature plots increased as temperature reached CMT, indicating that solubilization in the Pluronic® solutions was predominantly due to the formation of micelles. Similar trend was observed in the responsive polymer network solutions. The S values in 5% aqueous solutions of branched PAA did not exceed 15 and 40 µg/mL at 60°C for estradiol and progesterone, respectively. The solubility values found for responsive polymer network were the same as S in parent Pluronic® solutions of equivalent concentrations. Therefore, it may be suggested that solubilization behaviors of the responsive polymer network are governed by the properties of the poloxamer incorporated into it. Thermodynamic parameters of the solubilization process with responsive polymer network were calculated using the same approximations as in the micellar solubilization with Pluronic® polyols. See, Saito, Y., Kondo, Y., Abe, M., Sato, T., Chem. Pharm. Bull., 1994, 42, 1348. Namely,

partition coefficient  $P$  was estimated from equilibrium solubilities of estradiol in responsive polymer network and water:

$$P = S_{SH}/S_w \quad (13)$$

by extrapolating the solubility plots of the steroid in Figure 22 to 100% responsive polymer network. Using  $P$  values obtained from data in Figure 23, we calculated the standard free energy change ( $\Delta G$ ), standard enthalpy of solubilization ( $\Delta H$ ), and standard entropy of solubilization ( $\Delta S$ ) using the following expressions:

$$\Delta G = -RT \ln P; \Delta H = -R \Delta \ln P / \Delta(1/T); \Delta S = (\Delta H - \Delta G)/T \quad (14)$$

Thermodynamic parameters obtained along with  $P$  values are given in Table 14.

Apparent partition coefficients and thermodynamic parameters for solubilization of estradiol by responsive polymer network.

Table 14.

T, K	$P = S_{SH}/S_w$	$\Delta G$ kJ/mol	$\Delta H$ kJ/mol	$\Delta S$ J/mol
277	490	-14.3	4.72	68.6
293	520	-15.2		52.0
310	660	-16.7		53.9
323	660	-17.4		54.0
333	660	-18.0		54.0

Negative  $\Delta G$  values indicate spontaneous solubilization at all temperatures, whereas positive  $\Delta H$  shows that the solubilization was endothermic, similar to the solubilization of estriol, as well as indomethacin, by the poloxamer. Notably,  $\Delta S$  of solubilization was always positive, suggesting that the more ordered water molecules surrounding hydrophobic estradiol molecules moved to the less ordered bulk phase when the estradiol was transferred to the hydrophobic core of PPG segments in responsive polymer network. The aggregation of the PPG segments at elevated temperatures provides not only temporary cross-linking in the gel, but also a thermodynamically "friendly" environment for the hydrophobic drugs. Indeed, one can express the free energy of formation of the aggregate core-water interface in responsive

polymer network as:

$$\Delta G = [\sigma P_w(1-\phi) + \sigma W_D \phi](4\pi R^2/n) \quad (15)$$

where  $\sigma P_w$  and  $\sigma W_D$  are the interfacial tensions between pure PPO polymer and water and between water and the drug, respectively;  $\phi$  is the volume fraction of the drug within the PPO core; R is the effective radius of the core; and n is the aggregation number.

Equation (3) shows that solubilization of a hydrophobic drug of high  $\sigma W_D$  should increase the stability of the aggregate. The solubilization process was found to decrease the critical micellization concentration and substantially increase the micellar core radius in Pluronic surfactants (Hurter, P.N., et al., "In Solubilization in Surfactant Aggregates", Christian, S.D., Ed., Marcel Dekker, New York, 1995). A similar trend is indicated by the lowering the onset of gelation of the responsive polymer network upon solubilization of fluorescein (LogP 2.1) (Figure 24). The solubilization of hydrophobic drugs by responsive polymer network, analogous to the micellar solubilization of drugs by poloxamer, suggests that the responsive polymer network can be an effective vehicle in drug delivery.

Our in vitro study of hormone release from responsive polymer network shows an increase in the initial transport rate with either decreasing total polymer concentration in the formulation or decreasing temperature (Figure 25). These effects are related to the changes in macroscopic viscosity of the responsive polymer network, which erodes more rapidly from the feed phase through the membrane into the receiver compartment as the viscosity decreases (Figure 26). The degree of the responsive polymer network erosion was measured by weighing hormone-loaded responsive polymer network before and after kinetic experiment.

Figure 27 shows that the relative amount of progesterone penetrating into the receiver phase decreased 4-fold with the increase of total polymer concentration, whereas the total relative amount of progesterone stayed almost constant as total polymer concentration in the responsive polymer network increased. This result shows the existence of two routes of transport of hydrophobic drugs in our model system. Firstly, the drug incorporated into aggregates within the responsive polymer network



system can flow through the membrane along with the erosion of the responsive polymer network; secondly, the drug not associated with the responsive polymer network aggregates can diffuse out of the responsive polymer network in the feed phase. The second process should not be related to the viscosity of the responsive polymer network. Indeed, the dynamic light scattering experiment shows no dramatic change of diffusivity of poly(styrene) latex particles in the responsive polymer network as temperature rises thereby increasing macroscopic viscosity more than 10-fold (Figure 28). This result indicates that the viscosity of the responsive polymer network is essentially unaffected on the microscopic scale.

10

Appendix A attached.

## APPENDIX A

**FUNCTION DEFINITIONS**

- |    |  |  |
|----|--|--|
|    | <b>Abrasive:</b> abrades, smooths, polishes  | <b>Buffer:</b> helps maintain original pH (acidity or basicity) of a preparation   |
| 5  | <b>Absorbent powder:</b> takes up liquids, sponge-like action  | <b>Carrier:</b> a vehicle or base used for a preparation   |
|    | <b>Absorption base:</b> forms water-in-oil emulsions   | <b>Chelate:</b> form a complex with trace-metal impurities, usually calcium or iron  |
|    | <b>Acidulent:</b> acidifies, lowers pH, neutralizes alkalis  | <b>Colorant:</b> adds color, may be a soluble dy or an insoluble pigment   |
| 10 | <b>Amphoteric:</b> capable of reacting chemically either as an acid or a base; amphoteric surfactants are compatible with anionic and cationic surfactants | <b>Conditioner:</b> improves condition of skin and hair  |
|    | <b>Analgesic:</b> relieves pain  | <b>Coupling agent:</b> aids in solubilization or emulsification of incompatible componenets                                  |
|    | <b>Antacid:</b> neutralizes stomach acidity  | <b>Decolorant:</b> removes color by adsorption, bleaching or oxidaion  |
| 15 | <b>Antibacterial:</b> destroys/inhibits the growth/reproduction of bacteria  | <b>Denaturant:</b> used to denature ethyl alcohol  |
|    | <b>Anti-caking:</b> prevents or retards caking of powders; keeps powders free-flowing  | <b>Dental powder:</b> powdered dentifrice  |
|    | <b>Anti-dandruff:</b> retards or eliminates dandruff   | <b>Deodorant:</b> destroys, masks, or inhibits formation of unpleasant odors   |
| 20 | <b>Antifoam:</b> suppresses foam during mixing   | <b>Depilatory:</b> removes hair chemically   |
|    | <b>Anti-inflammatory:</b> reduces, suppresses, counteracts inflammation  | <b>Detergent:</b> a surface-active agent (surfactant) that cleans by emulsifying oils and suspends particulate soil          |
|    | <b>Anti-irritant:</b> reduces, suppresses or prevents irritation   | <b>Disinfectant:</b> destroys pathogenic microorganisms  |
| 25 | <b>Antimicrobial:</b> destroys, inhibits or suppresses the growth of microorganisms  | <b>Dispersant:</b> promotes the formation and stabilization of a dispersion or suspension                                    |
|    | <b>Antioxidant:</b> inhibits oxidation and rancidity   | <b>Dye stabilizer:</b> see Stabilizer  |
|    | <b>Antiperspirant:</b> reduces or inhibits perspiration  | <b>Emollient:</b> softens, smooths skin  |
|    | <b>Antipruritic:</b> reduces or prevents itching   | <b>Emulsifier:</b> a surface-active agent (surfactant) that promotes the formation of water-in-oil or oil-in-water emulsions |
| 30 | <b>Antiseptic:</b> inhibits the growth of microorganisms on the skin or on living tissue   | <b>Enzymes:</b> complex proteins produced by living cells that catalyze biochemical reactions at body temperature.           |
|    | <b>Antistat:</b> reduces static by neutralizing electrical charge on a surface   | <b>Fiber:</b> strands of natural or synthetic polymers; for instance, cotton, wool, silk, nylon, polyester                   |
| 35 | <b>Astringent:</b> contracts organic tissue after application  | <b>Film former:</b> solution of a polymer that forms films when the solvent evaporates after application to a surface        |
|    | <b>Binder:</b> promotes cohesion of powders  |  |
|    | <b>Bleaching agent:</b> lightens color, oxidizing agent  |  |
|    | <b>Botanical:</b> natural plant derivative   |  |

- Fixative:** fixes or sets perfumes; retards evaporation; promotes longer lasting aroma
- Flavor:** imparts a characteristic taste (and aroma) to edible foods and drinks; sometimes used in lip products
- Foam booster:** enhances quality and quantity of lather of shampoos
- Foamer:** a surface-active agent (surfactant) that produces foam; an emulsion of air-in-water
- Foam stabilizer:** see Foam booster
- Fungicide:** inhibits or destroys growth of fungi
- Gellant:** a gelling agent; forms gels; includes a wide variety of materials such as polymers, clays and soaps
- Glosser:** furnishes a surface luster or brightness; usually used in lip or hair products
- Hair colorant:** see Colorant
- Hair conditioner:** see Conditioner
- Hair dye:** imparts a new permanent or semi-permanent color to hair
- Hair-set polymer:** polymer and/or resins used to maintain desired hair shape
- Hair-set resin:** see Hair-set polymer
- Hair waving:** see Reducing agent and Neutralizer
- Humectant:** absorbs, holds, and retains moisture
- Hydrotrope:** enhances water solubility
- Intermediate:** basic chemicals which are chemically modified to obtain the desired function
- Lathering agent:** a surface active agent (surfactant) that forms a foam or lather on mixing with air in solution; see also Foamer
- Lubricant:** reduces friction, smoothes, adds slip
- Moisture barrier:** retards passage of moisture or water
- Moisturizer:** aids in increasing the moisture content of the skin through humectant or barrier action
- Neutralizer:** an oxidizing agent used in hair waving that stops the action of the reducing agent and re-establishes the disulfide linkages in hair
- Oil absorbent:** see Absorbent powder
- Ointment base:** an anhydrous mixture of oleaginous components used as a vehicle for medicaments
- Opacifier:** opacifies clear liquids or solids
- Oxidant:** oxidizing agent, neutralizes reducing agents, bleaching agent
- Pearlant:** imparts a pearlescent texture and luster
- Perfume solvent:** see Solvent and Solubilizer
- Peroxide stabilizer:** see Stabilizer
- Pigment:** a finely powdered insoluble substance used to impart color, luster, or opacity
- Plasticizer:** plasticizes (makes more flexible) polymeric films or fibers
- Polish:** smoothes; adds gloss and luster
- Polymer:** a very high molecular weight compound consisting of repeating structural units
- Powder:** a solid in the form of fine particles
- Preservative:** protects products from spoilage by microorganisms
- Propellant:** pressurized gas in a container used to expel the contents when pressure is released by opening a valve
- Protein:** naturally occurring complex combinations of amino acids
- Reducing agent:** reduces a chemical compound usually by donating electrons; neutralizes oxidizing agents
- Refatting agent:** adds oils materials to the surface of substrates, e.g., skin and hair
- Resin:** nonvolatile solid or semisolid organic substances obtained from plants as exudates, to prepared by polymerization of simple molecules
- Sequestrant:** forms coordination complexes with multivalent positive ions
- Silicone:** polymeric organic silicon compounds which are water-resistant

- Skin protectant:** protects the skin from environmental
- Solubilizer:** solubilizes, usually into aqueous vehicles, normally insoluble materials, such as fragrances, flavors, oils, etc.
- Solvent:** usually liquids capable of dissolving other substances
- Stabilizer:** added to stabilize emulsions and/or suspensions
- Stimulant:** produces a temporary increase in the functional activity of an organism or any of its parts
- Surfactant (surface active agent):** lowers surface tension between two or more incompatible phases; soaps, detergents, wetting agents, solubilizing agents and emulsifying agents are typical surfactants; surfactants are classified as anionic, cationic, nonionic and amphoteric; anionic surfactants are negatively charged, cationic surfactants have no electrical charge
- Suspending agent:** keeps finely divided solid particles in suspension
- Sweetener:** sweetens to provide a more pleasant taste
- Tanning accelerator:** accelerates the tanning of skin
- Thickener:** thickens or increases viscosity/consistency
- Thixotrope:** the property of certain gels and emulsions of becoming more fluid or less viscous when shaken or stirred
- UV absorber:** used as a sunscreen and to protect preparations from degradation by UV radiation
- UVA absorber:** absorbs in the range 320-400 nanometers (nm)
- UVB absorber:** absorbs in the range 290-320 nanometers (nm)
- Wax:** any of numerous substances of plant, animal or synthetic origin that contain principally esters of higher fatty acids and higher fatty alcohols; free fatty alcohols, fatty acids and hydrocarbons may also be present; waxes derived from petroleum
- products are mainly high-molecular-weight hydrocarbons
- Wetting agent:** a surface-active agent (surfactant) that lowers the surface and interfacial tension, facilitating the wetting of surfaces

**FUNCTIONS**

	<b><u>Abrasive</u></b>		<b><u>AHA</u></b>
	Adzuki beans		Apple (Pyrus malus) extract
5	Almond (Prunus amygdalus) meal, shell granules		Apricot (Prunus armeniaca) kernel powder
	Aluminum silicate		Citric acid
	Apricot (Prunus armeniaca) kernel powder, shells		Ethyl lactate
	Hydrated silica		Glycolic acid
	Jobba (Buxux chinensis) seed powder		Lactic acid
10	Luffa cylindrica		Malic acid
	Olive stone granules		Sodium lactate
	Oyster shell powder		Tartaric acid
	Peach (Prunus persica) pit powder		
	Peach (Prunus persica) stone granules		<b><u>Antiacne</u></b>
15	Polyethylene		Clays (white, yellow, red, green, pink)
	Polyethylene HEC granules		Perfluorodecalin
	Polyethylene oxidized, P. spheres		Salicylic acid
	Polystyrene		Sulfur
	Pumice		
20	Rice (Oryza sativa) bran		<b><u>Anti-aging</u></b>
	Silica and S. colloidal		Basil (Ocimum basilicum) extract
	Sodium chloride		Carrot (Daucus carota) extract
	Walnut (Juglans regia) shell powder		Catalpa kaempfera extract
25	<b><u>Absorption base</u></b>		Ceramide 33 (liquid soy extract)
	1,2,6-Hexanetriol		Crataegus cuneata extract
	Kaolin		Eugenia jambolana extract
	Petrolatum		Fomes fometarius extract
	Rice (Oryza sativa) starch		Fornistopsis pinicola extract
30	Soy (Glycine soja) sterol		Ganoderma lucidum oil
	Zeolite		Ginseng (Panax ginseng) extract
			Hyaluronic acid
	<b><u>Absorbent powder</u></b>		Hydrolyzed serum protein
	Corn (Zea mays) starch		Hydrolyzed soy flour
35	Maltodextrin		Isachne pulchella extract
	Nylon-12		Lactoferrin
	Oat (Avena sativa) bran, flour, meal		Lady's Thistle (Silybum marianum) extract
	Zeolite		Ligusticum jeholense extract
40	<b><u>Acidulent</u></b>		Marine collagen
	Acetic acid		Mushroom (Coriolus versicolor) extract
	Citric acid		Must rose (Rosa moschata) oil
	Fumaric acid		Perfluorodecalin
	Glutamic acid		Quaternium-51
45	Glycolic acid		Rubus thunbergii extract
	Hydrochloric acid		Serum protein
	Lactic acid		Stenocalyx micalii extract
	Nitric acid		Tricholoma matsutake extract
	Phosphoric acid		
50	Sodium bisulfate		<b><u>Antibacterial</u></b>
	Sulfuric acid		Ammonium iodide
	Tartaric acid		Chlorhexidine
			Chlorhexidine diacetate, C. digluconate
			Chlorhexidine dihydrochloride

- Chlorphenesin  
Hexamidine diisethionate  
Hexétidine  
Iceland moss (*Cetraria islandica*) extract  
5 Lactoterrin  
Lauralkonium bromide, L. chloride  
Laurtrimonium chloride  
Laurylpyridinium chloride  
Mauritiella armata extract  
10 Mushroom (*Cordyceps sbolifera*) extract  
Orange blossom extract  
Orange (*Citrus aurantium dulcis*) peel extract  
PEG-42 Ebiriko ceramides extract  
Peppermint (*Mentha piperita*) extract  
15 Philodendron (*Phellodendron amurense*) extract  
Pine (*Pinus sylvestris*) needle extract  
Polymethoxy bicyclic oxazolidine  
Quaternium 73  
Rubus thunbergii extract  
20 Tea tree (*Melaleuca alternifolia*) oil  
Triclocarban  
Undecylenic acid

**Anticaking**

- 25 Aluminum starch octenylsuccinate  
Calcium stearate  
Distarch phosphate  
Hydrated silica  
Kaolin  
30 Magnesium myristate, M. silicate  
Polyethylene, micronized  
Silica silylate  
Sodium aluminum silicate  
Zinc stearate

**Anticaries agent**

- Cetylamine hydrofluoride  
Olaflur  
Sodium fluoride  
40 Stearyl trihydroxyethyl propylenediamine  
dihydrofluoride

**Anticellulite**

- Aminophylline  
45 Bladderwrack (*Fucus vesiculosus*) extract  
Butcherbroom (*Ruscus aculeatus*) extract  
Carcinia cambogia extract  
Fomes fometarius extract  
Fomistopsis pinicola extract  
50 Ivy extrey  
Mushroom (*Coriolus versicolor*) extract  
TEA-hydroiodide  
Tricholoma matsutake extract

**Antidandruff**

- Burdock (*Arctium lappa*) extract  
Chloroxylonol  
Corydalis ambigua extract  
Disodium undecylenamido MEA-sulfosuccinate  
Ginger root extract  
Inga edulis extract  
Mauritiella armata extract  
Myristalkonium saccharinate

- PEG-6 undecylenate  
Piroctone olamine  
Resorcinol  
Rosemary (*Rosmarinus officinalis*) extract  
Sodium shale oil sulfonate  
Stenocalyx micalii extract  
Undecylenamide DEA  
Willow (*Salix alba*) bark extract  
Zinc pyrithione

**Antifungal**

- Black walnut (*Juglans nigra*) extract  
Coneflower (*Echinacea angustifolia*) extract  
Orange blossom extract  
Pfaffia paniculata extract

**Anti-inflammatory**

- Allantoin polygalacturonic acid  
Bisabolol  
Black poplar (*Populus nigra*) extract  
Brassica rapa-depressa extract  
Butcherbroom (*Ruscus aculeatus*) extract  
Calendula officinalis extract  
Catalpa kaempfera extract  
Celastrus paniculata extract  
Ceramide 33 (liquid soy extract)  
Chaparral (*Larrea mexicana*) extract  
Coneflower (*Echinacea angustifolia*) extract  
Cornflower (*Centaurea cyanus*) extract  
Dipotassium glycyrrhizinate  
Euphatorium fortunei extract  
Duphrasia officinalis extract  
Ficus racemosa extract  
Golden seal (*Hydrastis canadensis*) root extract  
Guaiazulene  
Horse chestnut (*Aesculia hippocastanum*) extract  
Jujube (*Zizyphus jujuba*) extract  
Laminaria japonica extract  
Licorice (*glycyrrhiza glabra*) extract  
Ligusticum jeholense, L. lucidum extract  
Matricaria (*Chamomilla recutita*) extract  
Melaleuca uncinata extract  
Melia azadirachta extract

	Mulberry ( <i>Morus nigra</i> ) extract	PVP
	Niacinamide ascorbate	Saccharomyces lysate extract
	Orange ( <i>Citrus aurantium dulcis</i> ) peel extract	Sodium C12-15 pareth-15 sulfonate
	Orange blossom extract	Sodium lauroamphoacetate
5	Palmetto extract	Soy (Glycine soja) protein
	Palmitoyl collagen amino acids	Undecylenoyl collagen amino acids
	Passion flower ( <i>Passiflora laurifolia</i> ) fruit extract	Valerian ( <i>Valeriana officinalis</i> ) extract
	Paulownia imperialis extract	
	Alicylic acid	<b><u>Antimicrobial</u></b>
10	Shea butter ( <i>Butyrospermum parkii</i> )	Benzalkonium chloride
	Sodium carboxymethyl beta-glucan	Benzoic acid
	soy (Glycine soja) protein	Benzyl alcohol
	Stearyl glycyrrhetinate	Bromochlorophene
	Stenocalyx micalii extract	2-Bromo-2-nitropropane-1,3-diol
15	Tocopheryl acetate, T. nicotinate	Butylparaben
	Trichomonas japonica extract	Capryloyl collagen amino acids
	Willow ( <i>Salix alba</i> ) extract	Capryloyl glycine, C. keratin amino acids
	Witch hazel ( <i>Hamamelis virginiana</i> ) extract	Captan
	withania somniferum extract	Cetethyldimonium bromide
20	Yarrow ( <i>Achillea millefolium</i> ) extract	Cetyl pyridinium chloride
	Zinc lactate	Chlorothymol
		Chloroxylenol
	<b><u>Anti-irritant</u></b>	Citron oil
	Acetyl monoethanolamine	Copper PCA
25	Allantoin	Dichlorobenzyl alcohol
	Allantoin acetyl methionine, A. glycyrrhetinic acid	Dilauryldimonium chloride
	Azelamide MEA	Domiphen bromide
	Betaine	Ethylparaben
30	Calendula officinalis extract	Eucalyptus ( <i>Eucalyptus globulus</i> ) extract
	Cocamidopropyl betaine	Fennel ( <i>Foeniculum vulgare</i> ) extract
	Coceth-7 carboxylic acid	Garlic ( <i>allium sativum</i> ) extract
	Cornflower ( <i>Centaurea cyanus</i> ) extract	Glyceryl caprylate, G. laurate
	Diisostearyl dimer dilinoleate	Hexamidine diisethionate
35	Dipalmitoyl cystine	Hinokitiol
	Green tea extract	Honeysuckle ( <i>Lonicera caprifolium</i> ) extract
	Hydrolyzed sweet almond protein	Lichen ( <i>Usnea barbata</i> ) extract
	Hydroxypropyltrimonium gleatin	Myristalkonium chloride
	Lauroyl collagen amino acids	Pentylene glycol
40	1-Lysine lauroyl methionine	Phenethyl alcohol
	Mallow extract	Phenol
	Matricaria ( <i>Chamomilla recutita</i> ) extract	Phenoxyethanol
	Palmitoyl hydrolyzed milk protein	Phenoxyisopropanol
	Palmitoyl hydrolyzed wheat protein	Phenyl mercuric acetate, P.m. benzoate, P.m. borate
45	Palmitoyl keratin amino acids	o-Phenylphenol
	PEG-12 palm kernel glycerides	Polymethoxy bicyclic oxazolidine
	PEG-28 glyceryl tailowate	Potassium sorbat
	PEG-30 glyceryl monococoate	Propylparaben
	PEG-60 almond glycerides	Ricinoleamodopropyltrimonium ethosulfate
50	PEG-78 glyceryl cocoate	Sage ( <i>Salvia officinalis</i> ) extract
	PEG-82 glyceryl tailowate	Sodium benzoate, S. pyrrhione
	PEG-200 glyceryl tailowate	Sodium ricinoleate, S. shale oil sulfonate
	Propionyl collagen amino acids	Thimerosal

- Thyme (*Thymus vulgaris*) extract  
Thymol  
Triclorocarban  
Triclosan
- 5 Undecylenamidopropyltrimonium methosulfate  
Undecylenic acid  
Zinc oxide, Z. PCA  
Zinc pyrithione, Z. undecylenate
- 10 Antioxidant  
Ascorbic acid  
A. polypeptide  
Ascorbyl oleate, A. palmitate  
Beta-carotene
- 15 BHA  
BHT  
t-Butyl hydroquinone  
Dilauryl thiodipropionate  
Dimyristyl thiodipropionate
- 20 Disodium EDTA  
Distearyl thiodipropionate  
Dodecyl gallate  
EDTA  
Erythorbic acid
- 25 Ferulic acid  
Grape (*Vitis vinifera*) seed extract  
Green tea extract  
HEDTA  
Hydroquinone
- 30 Hydroquinone-beta-D-glucopyranoside  
p-Hydroxyanisole  
Lactoferrin  
Lysine PCA  
Melanin
- 35 Methyl gallate  
Niacinamide ascorbate  
Nordihydroguaiaretic acid  
Oat (*Avena sativa*) extract  
Oryzanol
- 40 Pentasodium pentetate  
Pentetic acid  
Propyl gallate  
Retinyl palmitate polypeptide  
Rosemary (*Rosmarinus officinalis*) extract
- 45 *Saccharomyces* lysate extract  
Sage (*Salvia officinalis*) extract  
Sodium ascorbate, S. erythorbate  
Sodium metabisulfite  
Sodium selenate, S. sulfite
- 50 Superoxide dismutase,  
Tea (*Camellia sinensis*) extract  
Tetrasodium EDTA  
Tocopherol

Tocopheryl acetate, T. linoleate  
Wild marjoram (*Origanum vulgare*) extract  
Yeast (*Saccharomyces cerevisiae*) extract (Faex)

Antiperspirant

Allantoin-aluminum chlorhydrate  
Aluminum capryloyl hydrolyzed collage  
Aluminum chlorhydrex-gly, A. chloride  
Aluminum chlorohydrate, A. chlorohydrex  
Aluminum PCA, A. sesquichlorohydrate  
Aluminum undecylenoyl collagen amino acids  
Aluminum zirconium pentachlorohydrate  
Aluminum zirconium tetrachlorohydrate  
Aluminum zirconium tetrachlorohydrex GLY  
Aluminum zirconium trichlorohydrate  
Aluminum-zirconium-glycine powder  
Sage (*Salvia officinalis*) extract  
Tormentil (*Potentilla erecta*) extract  
Zirconium chlorohydrate

Antiseptic

Aluminum PCA  
Azadirachta indica extract  
2-Bromo-2-nitropropane-1,3-diol  
Calendula amurensis extract  
p-Chloro-m-cresol  
Clove (*Eugenia caryophyllus*) oil  
Crataegus cuneata extract  
Dichlorobenzyl alcohol  
Entada phaseoloides extract  
Eucalyptus (*Eucalyptus globulus*) extract  
Golden seal (*Hydrastis canadensis*) root extract  
Hexachlorophene  
Melia australasica, M. azadirachta extract  
Methyl salicylate  
Orange (*Citrus aurantium dulcis*) peel extract  
Oxyquinoline sulfate  
Pfaffia paniculata extract  
Potassium abietoyl hydrolyzed collagen  
PVP-iodine  
Silver nitrate  
Sodium salicylate  
Sterculia platanifolia extract  
Tea tree (*Melaleuca alternifolia*) oil  
Tormentil (*Potentilla erecta*) extract  
Xanthoxylum bungeanum extract

Antistat

Acetamide MEA  
Acetamidopropyl trimonium chloride  
6-(N-Acetylamino)-4-oxyhexyltrimonium chloride  
Alkyl dimethyl betaine



	Babassuamidopropylalkonium chloride	Soyethyldimonium ethosulfate
	Behenamidopropyl ethyldimonium ethosulfate	Stearalkonium chloride
	Behenamidopropyl hydroxyethyl dimonium chloride	Stearamidopropyl benzyl dimonium chloride
5	Carboxymethyl chitin	Stearamidopropyl ethyldimonium ethosulfate
	Cetethyl morpholinium ethosulfate	Steartrimonium chloride
	Cetrimonium chloride	N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate
	Chitin	Wheat germamidopropylethyldimonium ethosulfate
	Chitosan	
10	Cocamidopropyl ethyldimonium ethosulfate	<u>Astringent</u>
	Cocodimonium hydroxypropyl hydrolyzed rice protein	Aluminum citrate, A. lactate
	Cocodimonium hydroxypropyl hydrolyzed soy protein	Astragalus sinicus extract
15	Dimethicone hydroxypropyl trimonium chloride	Astrocaryum murumuru, A. tucuma extract
	dimethyl behenamine, D. cocamine	Azadirachta indica extract
	Dimethyl palmitamine, D. soyamine	Azelamide MEA
	Dimethyl tallowamine	Bearberry (Arctostaphylos uva-ursi) extract
20	Dioleylamidoethyl hydroxyethylmonium methosulfate	Birch (Betula alba) leaf extract
	Dipalmitoylethyl hydroxyethylmonium methosulfate	Catalpa kaempfera extract
	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Celastrus paniculata extract
25	Erucamidopropyl hydroxysultaine	Coccinea indica extract
	Glycerol monopyroglutamate	Coffee (Coffea arabica) bean extract
	Hydrogenated tallowamine oxide	Euphrasia officinalis extract
	Isostearamide propyl dimethylamine	Euterpe precatoria extract
	Lactamidopropyl trimonium chloride	Evening primrose (Oenothera biennis) extract
30	Lauryldimonium hydroxypropyl hydrolyzed collagen	Gentian (Gentiana lutea) extract
	Linoleamidopropyl dimethylamine dimer dilinoleate	Geranium maculatum extract
	Olealkonium chloride	Grape (Vitis vinifera) leaf extract
35	PEG-2 cocamine	Henna (Lawsonia inermis) extract
	PEG-2 cocomonium chloride	Hierochloe odorata extract
	PEG-2 oleammonium chloride	Honeysuckle (Lonicera caprifolium) extract
	PEG-8 caprylic/capric glycerides	Hops (Humulus lupulus) extract
	PEG-10 cocamine	Horesetail extract
40	PEG-15 soyamine	Hypericum perforatum extract
	PPG-9 diethylmonium chloride	Ivy extract
	PPG-25 diethylmonium chloride	Juniperus communis extract
	PPG-40 diethylmonium chloride	Kadsura heteliloca extract
45	Propylene glycol stearate	Kola (Cola acuminata) extract
	Quaternium-26, -27, -53, -62, -72	Lady's mantle (Alchemilla vulgaris) extract
	Rapeseedamidopropyl benzyldimonium chloride	Lemon (Citrus medica limonum) extract, peel extract
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Lemon bioflavonoids extract
	Silica, colloidal	Lysimachia foenum-graecum extract
50	Sorbitan caprylate	Magnolia spp. extract
	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Mauritia flexosa extract
	Soyethyl morpholinium ethosulfate	Maximilliana regia extract
		Melaleuca uncinata, M. wilsonii extract
		Melia australasica extract
		Nettle (Urtica dioica) extract
		Oak (Quercus) bark extract
		Ocimum basilicum, O. santum extract
		Palmetto extract
		Passion flower (Passiflora laurifolia) fruit extract

- Plantain (*Plantago major*) extract  
 Polygonum multiflorum extract  
 Pterocarpus marsupianus extract  
 Raspberry (*Rubus*) extract  
 5 Sambucus nigra oil  
 Sanguisorbae root extract  
 Selinum spp. extract  
 Shorea robusta extract  
 Tannic acid  
 10 Walnut (*Juglans regia*) leaf extract, oil  
 Wheat (*Triticum vulgare*) protein  
 White nettle (*Lamium album*) extract  
 Witch hazel (*Hamamelis virginiana*) extract  
 Xanthoxylum bungeanum extract  
 15 Zinc lactate  
 Ziziphus jujuba extract

**Binder**

- Aluminum starch octenylsuccinate  
 20 Boron nitride  
 C20-40, C30-50, C40-60 alcohols  
 Calcium stearate  
 Cellulose gum  
 Dihydroabietyl behenate  
 25 Diisostearyl malate  
 dioctyl sebacate  
 Distarch phosphate  
 ethylcellulose  
 Gellan gum  
 30 Hydrogenated jojoba oil  
 Isocetyl alcohol, I. palmitate  
 Isopropyl isostearate  
 Isostearyl erucate, I. isostearate  
 Isostearyl neopentanoate  
 35 Maltodextrin  
 Methylcellulose  
 Microcrystalline cellulose  
 Octyl palmitate  
 Octyldodecyl myristate  
 40 bis-Octyldodecyl stearoyl dimer dilinoleate  
 Octyldodecyl stearoyl stearate  
 Oleyl oleate  
 PEG-20, -75, -150, -240, -350  
 Polydipentene  
 45 Polyethylene; P. micronized  
 PTFE  
 PVP  
 Sorbitol  
 Synthetic wax  
 50 Tapioca dextrin  
 Tridecyl benenate, T. neopentanoate  
 Tridecyl stearoyl stearate  
 Trisodium HEDTA

**Biol. polymer**

- Distarch phosphate  
 Dog rose (*Rosa canina*) see extract  
 Hydrogen peroxide  
 Kojic acid  
 Mulberry (*Morus nigra*) extract  
 Sanguisorbae root extract

**Botanical**

- Acacia  
 Acacia farnesiana extract  
 Agrimony (*Agrimonia eupatoria*) extract  
 Alder (*Alnus firma*) extract  
 Alfalfa (*Medicago sativa*) extract  
 Algae (*Ascophyllum nodosum*) extract  
 Algae (*Lithothamnium calcarm*) extract  
 Aloe barbadensis, A.b. extract  
 Aloe capensis extract  
 Alpine Veronica extract  
 Althea officinalis extract  
 Angelica archangelica extract  
 Anise (*Pimpinella anisum*) extract  
 Apple (*Pyrus malus*) extract  
 Apricot (*Prunus armeniaca*) extract  
 Arnica montana extract  
 Artemisia capillaris extract  
 Artichoke (*Cynara scolymus*) extract  
 Asafetida (*Ferula assa foetida*) extract  
 Asiasarum \_\_\_\_\_ extract  
 Asparagus officinalis extract  
 Astragalus sinicus extract  
 Avena (*Geum rivale*) extract  
 Avocado (*persea gratissima*) extract  
 Balm mint (*Melissa officinalis*) extract, oil  
 extract  
 Vanana (*Musa sapientum*) extract  
 Barley (*Hordeum vulgare*) extract  
 Basil (*Ocimum basilicum*) extract  
 Bearberry (*Arctostaphylos uvaUrsi*) extract  
 Bee pollen extract  
 Beet (*Beta vulgaris*) extract  
 Betaglucan  
 Bilberry (*Vaccinium myrtillus*) extract  
 Bioflavonoids  
 Birch (*Betula alba*) bark extract, leaf extract  
 Birch (*Betula platyphylla japonica*) extract  
 Bitter orange (*Citrus aurantium amara*) extract,  
 flower extract, peel extract  
 Black cohosh (*Cimicifuga racemosa*) extract  
 Black currant (*Ribes nigrum*) extract  
 Black henna extract  
 Black poplar (*Populus nigra*) extract  
 Black walnut (*Juglans nigra*) extract

	Bladderwrack ( <i>Fucus vesiculosus</i> ) extract	Dead Sea Mud, Salts
	Borage ( <i>Borago officinalis</i> ) extract	Dog rose ( <i>Rosa canina</i> ) hips extract
	Buckthorn ( <i>Frangula alnus</i> ) extract	Dyer's broom extract
	Burdock ( <i>Arctium lappa</i> ) extract	Eleuthero ginseng ( <i>Acanthopanax senticosus</i> ) extract
5	Burdock ( <i>Arctium minus</i> ) root extract	Elm ( <i>Ulmus campestris</i> ) extract
	Burnet extract	Eucalyptus ( <i>Eucalyptus globulus</i> ) extract
	Butcherbroom ( <i>Ruscus aculeatus</i> ) extract	Eucalyptus globulus oil
	Cabbage rose ( <i>Rosa centifolia</i> ) extract	Eucommia ulmoides extract
	Calamus ( <i>Acorus calamus</i> ) extract	Euphrasia officinalis extract
10	Calendula officinalis extract	Evening primrose ( <i>Oenothera biennis</i> ) extract, oil
	Caper ( <i>Capparis spinosa</i> ) extract	Everlasting ( <i>Helichrysum arenarium</i> ) extract
	Capsicum frutescens extract, C.f. oleoresin	Fennel ( <i>Foeniculum vulgare</i> ) extract
	Caraway ( <i>Carum carvi</i> ) extract	Fenugreek extract
	Carrageenan ( <i>Chondrus crispus</i> )	Fermented rice ( <i>Oryza sativa</i> ) extract
15	Carrot ( <i>Daucus carota</i> ) extract	Fern ( <i>Dryopteris filix-Mas</i> ) extract
	Carrot ( <i>Daucus carota sativa</i> ) oil	Fig ( <i>Ficus carica</i> ) extract
	Cassia auriculata extract	Fir needle extract
	Celandine ( <i>Chelidonium majus</i> ) extract	Fumitory ( <i>Fumaria officinalis</i> ) extract
	Chamomile ( <i>Anthemis nobilis</i> ) extract, oil	Gardenia florida extract
20	Chaparral ( <i>Larrea mexicana</i> ) extract	Garlic ( <i>Allium sativum</i> ) extract
	Cherry ( <i>Prunus speciosa</i> ) leaf extract	Gelidium cartilagineum
	Cherry bark, C.b. extract	Gentian ( <i>Gentiana lutea</i> ) extract
	Chestnut ( <i>Castanea sativa</i> ) extract	Geranium maculatum extract
	Chinese hibiscus ( <i>Hibiscus rosa-sinensis</i> ) extract	Ginger root extract
25	Chlorella vulgaris extract	Ginkgo biloba extract
	Cimicifuga foetida rhizome extract	Ginseng ( <i>Panax ginseng</i> ) extract
	Cinchona succiruba extract	Glycyrrhetic acid
	Citroflavonoid, water soluble	Glycyrrhizic acid
	Citrus bioflavonoid complex	Glycyrrhizin ammoniated
30	Clary extract	Golden seal ( <i>Hydrastis canadensis</i> ) root extract
	Clove ( <i>Eugenia caryophyllus</i> ) extract	Goldthread ( <i>Coptis japonica</i> ) extract
	Clover ( <i>Trifolium pratense</i> ) extract	Gotu kola extract
	_____ officinale rhizome extract, C.o. water	Grape ( <i>Vitis vinifera</i> ) distillate, extract
35	Coffee ( <i>Coffea arabica</i> ) bean extract	Grape ( <i>Vitis vinifera</i> ) leaf, seed extract
	_____ oatmeal	Grape skin extract
	_____ ( <i>Tussilago farfara</i> ) leaf extract	Grapefruit ( <i>Citrus grandis</i> ) peel extract
	_____ ( <i>Symphitum officinale</i> ) leaf extract	Green bean ( <i>Phaseolus lunatus</i> ) extract
	_____ extract	Ground Ivy ( <i>Glechoma hederacea</i> ) extract
40	_____ ( <i>Echinacea angustifolia</i> ) extract	Guarana ( <i>Paullinia cupana</i> ) extract
	_____ officinalis	Harpagophytum procumbens extract
	_____ olitorius extract	Hay flower extract
	_____ ( <i>Coriandrum sativum</i> ) extract	Hazel ( <i>Corylus avellana</i> ) nut extract
	_____ ( <i>Zea mays</i> ) cob powder, silk extract	Henna ( <i>Lawsonia inermis</i> ) extract
45	_____ poppy ( <i>Papaver rhoeas</i> ) extract	Hesperidin, H, methyl chalcone
	_____ ( <i>Centaurea cyanus</i> ) extract	Hibiscus sabdariffa extract
	_____ ( <i>Agropyron repens</i> ) grass	Hibiscus syriacus extract
	_____ monogina extract	High beta-glucan barley flour
	_____ maritimum extract	Honeysuckle ( <i>Lonicera caprifolium</i> ) extract
50	Cucumber ( <i>Cucumis sativus</i> ) extract	Honeysuckle ( <i>Lonicera japonica</i> ) leaf extract
	Cypress ( <i>Cupressus sempervirens</i> ) extract	Hops ( <i>Humulus lupulus</i> ) extract
	Dandelion ( <i>Taraxacum officinale</i> ) extract	Horse chestnut ( <i>Aesculia hippocastanum</i> ) extract
	Date ( <i>Phoenix dactylifera</i> ) extract	Horseradish ( <i>Cochlearia armoracia</i> ) extract

- |    |  |   |
|----|--|---|
|    | Horsetail extract  | Nasturtium extract  |
|    | Houttuynia cordata extract   | Neroli extract  |
|    | Hyacinth (Hyacinthus orientalis) extract                           | nettle (Urtica dioica) extract                                |
|    | Hydrocotyl (Centella asiatica) extract                             | Oak (Quercus) bark extract                                    |
| 5  | Hydrolyzed oat protein, soy flour                                  | Oak root extract  |
|    | Hypericum perforatum extract                                       | Oat (Avena sativa) bran, bran extract, flour, protein         |
|    | Hyssop (Hyssopus officinalis) extract                              | Oat flower  |
|    | Indian cress (Tropaeolum majus) extract                            | Olive (Olea europa) extract, leaf extract                     |
|    | Isodonis Japonicus extract   | Onion (Allium cepa) extract                                   |
| 10 | Ivy extract  | Orange blossom extract  |
|    | Japanese angelica (Angelica acutiloba) extract, water              | Orange (Citrus aurantium dulcis) flower extract, peel extract |
|    | Japanese hawthorn (Crataegus cuneata) extract                      | Pansy (Viola tricolor) extract                                |
|    | Jasmine (Jasminum officinale) extract                              | Papaya (Carica papaya) extract                                |
| 15 | Job's tears (Coix lacryma-jobi) extract                            | Parsley (Carum petroselinum) extract                          |
|    | Jojoba (Buxus chinensis) seed powder                               | Passion flower (Passiflora laurifolia) fruit extract          |
|    | Juniperus communis extract   | Passionflower (Passiflora incarnata) extract                  |
|    | Kelp (Macrocystis pyrifera) extract                                | Pea (Pisum sativum) extract                                   |
|    | Kiwi (Actinidia chinensis) fruit extract, seed oil                 | Peach (Prunus persica) extract, leaf extract                  |
| 20 | Kola (Cola acuminata) extract                                      | Pelargonium capitatum extract                                 |
|    | Krameria triandra extract  | Pellitory (Parietaria officinalis) extract                    |
|    | Lady's mantle (Alchemilla vulgaris) extract                        | Pennyroyal (Mentha pulegium) extract                          |
|    | Lady's Thistle (Silybum marianum) extract                          | Peony (Paeonia albaflora) extract                             |
|    | Laurel (Laurus nobilis) extract                                    | Peony (Paeonia obovata) root extract                          |
| 25 | Lavender (Lavandula angustifolia) extract, water                   | Peppermint (Mentha piperita) extract, oil                     |
|    | Lemon (Citrus medica limonum) extract, juice extract, peel extract | Perilla ocymoides extract                                     |
|    | Lemon bioflavonoids extract  | Periwinkle (Vinca minor) extract                              |
|    | Lemongrass (Cymbopogon schoenanthus) extract                       | PEG-80 jojoba acid/alcohol                                    |
| 30 | Leopard flower (Belamcanda chinensis) root extract                 | PEG-120 jojoba acid/alcohol                                   |
|    | Lettuce (Lactuca scariola sativa) extract                          | Pfaffia paniculata extract                                    |
|    | Licorice (Glycyrrhiza glabra) extract                              | Pheilodendron amurense extract                                |
|    | Lilac (Syringa vulgaris) extract                                   | Phospholipids   |
| 35 | Linden (Tilia argentea) extract                                    | pimento (Pimenta officinalis) extract                         |
|    | Linden (Tilia cordata) extract, water                              | Pine (Pinus sylvestris) cone, needle extract                  |
|    | Loquat (Eriobotrya japonica) leaf extract                          | Pineapple (Ananas sativus) extract                            |
|    | Maidenhair fern extract  | Plantain (Plantago major) extract                             |
|    | magnolia kobus extract   | Pollen extract  |
| 40 | Mallow extract   | Pongamol  |
|    | Mandragora officinarum extract                                     | Poria Cocos extract   |
|    | Mannan   | Pueraria lobata extract                                       |
|    | Marigold   | Queen of the meadow extract                                   |
|    | Marine silts   | Quillaja saponaria extract                                    |
| 45 | Matricaria (Chamomilla recutita) extract                           | Quince (Pyrus cydonia) seed extract                           |
|    | Meadowsweet (Spiraea ulmaria) extract                              | Quinoa (Chenopodium quinoa) extract                           |
|    | Melon (Cucumis melo) extract                                       | Raspberry (Rubus) extract                                     |
|    | MEA iodine   | Rauwolfia (Serpentina) extract                                |
|    | Mistletoe (Viscum album) extract                                   | Red clover  |
| 50 | Mugwort (Artemisia princeps) extract, water                        | Rehmannia chinensis extract                                   |
|    | Mulberry (Morus alba) root extract                                 | Restharrow (Ononis spinosa) extract                           |
|    | Mushroom extract   | Rhododendron chrysanthum extract                              |
|    | Myrrh (Commiphora myrrha) extract                                  | Rhodophyceae extract  |
|    |  | Rhubarb (Rheum palmatum) extract                              |

	Rice ( <i>Oryza sativa</i> ) bran extract	Wild marjoram ( <i>Origanum vulgare</i> ) extract
	Rice fatty acid	Willow ( <i>Salix alba</i> ) bark extract, extract
	<u>Rose' (<i>Rosa multiflora</i>) extract</u>	Willow ( <i>Salix alba</i> ) leaf extract
	Rosemary ( <i>Rosmarinus officinalis</i> ) extract	Witch hazel ( <i>Hamamelis virginiana</i> ) extract
5	Rubia tinctorum extract	Yarrow ( <i>Achillea millefolium</i> ) extract
	Safflower ( <i>Carthamus tinctorius</i> ) extract	Yeast ( <i>Saccheromyces cerevisiae</i> ) extract (Faex)
	Sage ( <i>Salvia officinalis</i> ) extract, water	Yucca vera extract
	Sambucus nigra berry extract, extract	Zanthoxylum piperitum extract
	Sandalwood ( <i>Santalum album</i> ) extract	Zedoary ( <i>Curcuma zedoraria</i> ) oil
10	Sanguinaria canadensis extract	
	Saponaria officinalis extract	<u>Buffer</u>
	Sasa veitchii extract	Ammonium carbonate, A. phoshate
	Saxifraga sarmentosa extract	Calcium hydroxide, C. phosphate
	Scabiosa arvensis extract	Citric acid
15	Scutellaria baicalensis root extract	Ethanolamine HCl
	Silk extract	Glycine
	Silver fir ( <i>Abies pectinata</i> ) extract	Phosphoric acid
	Sisal ( <i>Agave rigida</i> ) extract	Potassium phosphate
	Slippery elm extract	Potassium sodium tartrate
20	Soapberry ( <i>Sapindus mukuross</i> ) extract	Sodium acetate, S. citrate
	Sophora angustifolia extract	Sodium lactate, S. phosphate
	Sophora flavescens root extract	Succinic acid
	Sophora japonica extract	Tromethamine
	Soybean ( <i>Glycine soja</i> ) extract	
25	Soy ( <i>Glycine soja</i> ) germ extract, protein, sterol	<u>Carrier</u>
	Spearmint ( <i>Mentha viridis</i> ) extract, oil	Acrylates copolymer, spherical powder
	Spinach ( <i>Spinacia oleracea</i> ) extract	Arginine
	Spiraea ulmaria extract	Caprylic/capric triglyceride
	Sunflower ( <i>Helianthus annuus</i> ) seed extract	Caprylic/capric/lauric triglyceride
30	Sweet almond ( <i>Prunus amygdalus dulcis</i> ) extract	Caprylic/capric/oleic triglyceride
	Sweet chery ( <i>Prunus avium</i> ) extract	Ceteareth-20
	Sweet cicely ( <i>Anthriscus cerefolium</i> ) extract	Coconut ( <i>Cocos nucifera</i> ) oil
	Sweet clover ( <i>Melilotus officinalis</i> ) extract	Cyclodextrin
	Sweet violet ( <i>Viola odorata</i> ) extract	Dipropylene glycol
35	Swertia chirata extract	Glyceryl caprylate, G. caprylate/caprare
	Tea ( <i>Camillia sinensis</i> ) extract	Hydrated silica
	Thyme ( <i>Thymus vulgaris</i> ) extract	Liposomes
	Tomato ( <i>Solanum lycopersicum</i> ) extract	magnesium silicate
	Tormentil ( <i>Potentilla erecta</i> ) extract	Methyl propanediol
40	Tuberose ( <i>Polianthes tuberosa</i> ) extract	PEG-8/SMDI copolymer
	Turmeric ( <i>Curcuma longa</i> ) extract	Potassium chloride
	Valerian ( <i>Valeriana officinalis</i> ) extract	PPG-12/SMDI Copolymer
	Walnut ( <i>Juglans regia</i> ) extract, leaf extract	PPG-51/SMDI Copolymer
	Water Lily ( <i>Nymphaea alba</i> ) root extract	Propylene carbonate, P. glycol
45	Watercress ( <i>Nasturtium officinale</i> ) extract	Serum albumin
	Wheat ( <i>Triticum vulgare</i> ) extract, protein	Sodium carboxymethyl beta-glucan
	Wheat ( <i>Triticum vulgare</i> ) germ extract	Sodium chloride
	Wheat bran lipids	sodium magnesium silicate
	White ginger ( <i>Hedychium coronarium</i> ) extract	Tapioca dextrin
50	White nettle ( <i>Lamium album</i> ) extract	
	Wild agrimony ( <i>Potentilla anserina</i> ) extract	<u>Chelators</u>
	Wild cherry ( <i>Prunus serotina</i> ) bark extract	beta-Alanine diacetric acid
	Wild indigo ( <i>Baptista tinctoria</i> )	Calcium disodium EDTA

	Disodium EDTA, -copper EDTA HEDTA	Xanthozylum bungeanum extract
5	Malic acid Monostearyl citrate Pentasodium pentetate Pentetic acid Phytic acid Potassium aspartate	<u>Cleansing</u> Birch ( <i>Betula alba</i> ) leaf extract Lemongrass ( <i>Cymbopogon schoenanthus</i> ) extract Oat ( <i>Avena sativa</i> ) bran extract Passion glower ( <i>Passiflora laurifolia</i> ) fruit extract Witch hazel ( <i>Hamamelis virginiana</i> ) extract Yarrow ( <i>Achillea millefolium</i> ) extract
10	Sodium aspartate Sodium dihydroxyethylglycinate Sodium hexametaphosphate Tetrahydroxypropyl ethylenediamine Tetrasodium EDTA	<u>Conditioner</u> Acetamide MEA 6-(N-Acetyl amino)-4-oxyhexyltrimonium chloride Acrylamidopropyltrimonium chloride/acrylamide copolymer Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer AMP-isostearoyl hydrolyzed wheat protein Apricot ( <i>Prunus armeniaca</i> ) kernel oil Behenalkonium chloride Behenamidopropyl dihydroxypropyl dimonium chloride Benhenamidopropyl ethyldimonium ethosulfate Benhenamidopropyl PG-dimonium chloride Behenamidopropyldimethylamine behenate Behenamine oxide Behenoyl PG-trimonium chloride Behenyl betaine Benzyltrimonium hydrolyzed collagen Canolamidopropyl betain Capramide DEA Caprylic/capric/lauric triglyceride Caprylyl pyrrolidone Cassia auriculata extract Cetamine oxide Cetearalkonium chloride Chitosan PCA Citric acid Cocamidopropyl dimethylamine, C.d. lactate, C.d. propionate Cocamidopropyl dimethylaminohydroxypropyl hydrolyzed collagen Cocamidopropyldimonium hydroxypropylhydrolyzed collagen Cocamidopropyl ethyldimonium ethosulfate Cocamidopropyl PG-dimonium chloride, C.P.c. phosphate Coco-morpholine oxide Coco/oleamidopropyl betaine Cocodimonium hydroxypropyl hydrolyzed hair keratin
15	Tripotassium EDTA Trisodium EDTA, HEDTA	
	<u>Cell stimulant</u> Aesculus chinensis extract Artemisia apiacea extract Astrocaryum muru, A. tucuma extract Bactris gasipaes extract Borojoa sorbilla extract Calendula amurrensis extract Chrysanthemum morifolium extract Coccinea indica extract Comfrey ( <i>Symphytum officinale</i> ) leaf extract Condurango extract Dandelion ( <i>Taraxacum officinale</i> ) extract Echitea glauca extract Equisetum arvense extract Eucalyptus ( <i>Eucalyptus globulus</i> ) extract Euphorium fortunei extract Euterpe precatoria extract Ficus racemosa extract Glycoproteins Hierochloe odorata extract Horse chestnut ( <i>Aesculia hippocastanum</i> ) extract Inga edulis extract Kadsura heteliloca extract Ligustrum lucidum extract Lysimachia foenum-graecum extract Mauritia flexosa extract Maximilliana regia extract Melaleuca bracteata, M. symphyocarp extract Nelumbium speciosum extract Ocimum basilicum extract, O. santum extract Paulownia imperialis extract Pfaffia spp. extract Pterocarpus marsupianus extract Rubus thunbergii extract Selinum spp. extract Shorea robusota extract	
20		
25		
30		
35		
40		
45		
50		

	Cocodimonium hydroxypropyl hydrolyzed rice protein	Hydroxycetyl hydroxyethyl dimonium chloride
	Cocodimonium hydroxypropyl hydrolyzed silk	Hydroxyproline
	Cocodimonium hydroxypropyl hydrolyzed soy protein	Hydroxypropyl chitosan
5	Coconut alcohol	Hydroxypropyl guar hydroxypropyltrimonium chloride
	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Hydroxypropyl-bis-isostearamidopropyldimonium chloride
	Collagen phthalate	Hydroxypropyl bis-stearyldimonium chloride
10	Dibehenyl/diarachidyl dimonium chloride	Hydroxypropyltrimonium gelatin
	Dibehenyldimonium chloride	Hydroxypropyltrimonium hydrolyzed keratin H.h. silk
	Dicetyldimonium chloride	Hydroxypropyltrimonium hydrolyzed wheat protein
	Didecyldimonium chloride	Isopropyl hydroxybutyramide dimethicone copolyol
15	Dihydroxyethyl cocamine oxide	Isopropyl lanolate
	Dihydroxyethyl dihydroxypropyl stearamonium chloride	Isostearamidopropyl betaine, I. dimethylamine
	Dihydroxyethyl tallow glycinate	Isostearamidopropyl dimethylamine gluconate
	Dihydroxyethyl tallowamine oxide	Isostearamidopropyl dimethylamine glycolate
20	Dilauryl acetyl dimonium chloride	Isostearamidopropyl dimethylamine lactat
	Dilinoeamidopropyl dimethylamine	Isostearamidopropyl ethyldimonium ethosulfate
	Dimethyl hydrogenated tallowamine	Isostearamidopropyl laurylacetodimonium chloride
	Dimethyl lauramine, D.1. isostearate	Isostearamidopropyl morpholine, I.m. lactate
	Dimethyl myristamine, soyamine, stearamine	Isostearamidopropyl morpholine oxide
	Dimethylamidopropylamine dimerate	Isostearamidopropyl PG-dimonium chloride
25	Disodium hydrogenated cottonseed glyceride sulfosuccinate	Isostearaminopropalkonium chloride
	Disodium laureth sulfosuccinate	Isostearyl hydrolyzed animal protein
	Disodium lauroamphodiacetate	Isostearylamidopropyl dihydroxypropyl dimonium chloride
	Distearyldimonium chloride	Lactoglobulin
30	Ethyl ester of hydrolyzed keratin	Lauramidopropyl dimethylamine
	N-Ethylether-bis-1,4-(N-isostearylamidopropyl)-N,N-dimethyl ammonium chlo	Lauramidopropyl PG-dimonium chloride, I.P.c. phosphate
	Glutamic acid	Lauramine oxide
35	Glyceryl collagenate	Lauroampho PG-glycinate phosphate
	Glycine	Lauroyl hydrolyzed collagen, L.h. elastin
	Guar hydroxypropyltrimonium chloride	Lauroyl silk amino acids
	Henna (Lawsonia inermis) extract	Lauryl methyl gluceth-10 hydroxypropyl-dimonium chloride
	Hydrogenated tallowamine oxide	Lauryl phosphate, L. pyrrolidone
40	Hydrogenated tallowtrimonium chloride	Lauryldimonium hydroxypropyl hydrolyzed collagen, keratin, soy protein
	Hydrolyzed conchiorin protein	Linoleamidopropyldimethylamine
	Hydrolyzed egg protein	Milk amino acids
	Hydrolyzed extensin	Milk protein (Lactis proteinum)
	Hydrolyzed fibronectin	Myristalkonium chloride
	Hydrolyzed fish protein	Myristamidopropyl betaine, M. dimethylamine
45	Hydrolyzed keratin	Myrtrimonium bromide
	Hydrolyzed lactalbumin	Oat (Avena sativa) protein
	Hydrolyzed milk protein	Oleamide
	Hydrolyzed oats	Oleamidopropyl betaine, O. dimethylamine
	Hydrolyzed reticulin	
50	Hydrolyzed soy protein	
	Hydrolyzed sweet almond protein	
	Hydrolyzed wheat protein/PVP copolymer	
	Hydrolyzed wheat protein polysiloxane polymer	

	Oleamidopropyl dimethylamine hydrolyzed collagen	Rice peptide
	Oleamidopropylamine oxide	Ricinoleamidopropyl-dimonium ethosulfate
	Oleamine	Ricinoleamidopropyl betaine
5	Oleamine oxide	Ricinoleamidopropyl dimethylamine lactate
	Oleoyl sarcosine	Ricinoleamidopropyl ethyldimonium ethosulfate
	Oleyl betaine	Ricinoleamidopropyltrimonium chloride
	Oleyl dimethylamidopropyl ethonium ethosulfate	Ricinoleamidopropyltrimonium ethosulfate
	Palmitamidopropyl betaine	Silicone quaternium-3, -4
10	Palmitamidopropyl dimethylamine	Silk amino acids
	Palmitamine, P. oxide	Sodium/TEA-lauroyl collagen amino acids
	Panthenyl hydroxypropyl steardimonium chloride	Sodium/TEA-lauroyl hydrolyzed keratin
	PEG-2 milk solids	Sodium/TEA-lauroyl keratin amino acids
	PEG-2 oleammonium chloride	Sodium citrate
15	PEG-3 lauramine oxide	Sodium cocoyl hydrolyzed soy protein
	PEG-5 stearyl ammonium lactate	Sodium hydrogenated tallow dimethyl glycinate
	PEG-15 cocomonium chloride	Sodium lauroyl collagen, keratin amino acids
	PEG-15 cocopolyamine	Sodium lauroyl wheat amino acids
	PEG-15 tallowmonium chloride	Sodium stearoamphoacetate
20	PEG-27	Soluble keratin, wheat protein
	PEG-40	Soyamide DEA
	PEG-85 lanolin	Soyamidopropyl benzyldimonium chloride
	PEG-7000	Soyamidopropyl betaine, S. dimethylamine
	Polydimethicone copolyol	Soyamidopropyl ethyldimonium ethosulfate
25	Polymethacrylamidopropyltrimonium chloride	Soyethyl morpholinium ethosulfate
	Polyoxyethylene dihydroxypropyl linoleaminium chloride	Soyethyldimonium ethosulfate
	Polyquaternium-2, -5, -6, -11, -16	Stearamide MEA
	Polyquaternium-17, -18, -24, -29, -44	Stearamidoethyl diethylamine, ethanolamine
30	Potassium dimethicone copolyol panthenyl phosphate	Stearamidopropyl benzyl dimonium chloride
	Potassium lauroyl collagen amino acids	Searamidopropyl cetearyl dimonium tosylate
	Potassium lauroyl hydrolyzed soy protein	Stearamidopropyl dimethylamine stearate
	Potassium lauroyl wheat amino acids	Stearamidopropyl ethyldimonium ethosulfate
35	Potassium stearoyl hydrolyzed collagen	Stearamidopropyl morpholine lactate
	PPG-5 lanolin alcohol ether	Stearamidopropyl PG-dimonium chloride
	PPG-9 diethylmonium chloride	phosphate
	PPG-20 lanolin alcohol ether	Stearmine oxide
	Proline	Steardimonium hydroxypropyl hydrolyzed collagen, keratin
40	Propylene glycol stearate	Steardimonium panthenol
	PVP/dimethiconylacrylate/polycarbamyl/polyglycol ester	Stearyl amidoethyl diethylamine
	PVP/dimethylaminoethylmethacrylate copolymer	Steartrimonium bromide
45	PVP/dimethylaminoethylmethacrylate/polycarbamyl/polyglycol ester	Stearyl dimethicone
	PVP/hydrolyzed wheat protein copolymer	Tallowamidopropyl dimethylamine
	Quaternium-22, -26, -33, -61, -62, -70, -80	Tetramethyl trihydroxy hexadecane
	Quaternium-76 hydrolyzed collagen	TEA-cocoyl hydrolyzed collagen
50	Rapeseedamidopropyl benzyldimonium chloride	Trachea hydrolysate
	Rapeseedamidopropyl epoxypropyl dimonium chloride	Tricetylmonium chloride
	Rapeseedamidopropyl ethyldimonium ethosulfate	Tridecyl salicylate
		Triethonium hydrolyzed collagen ethosulfate
		Wheat germamidopropalkonium chloride
		Wheat germamidopropyl dimethylamine lactate
		Wheat germamidopropyl ethyldimonium ethosulfate
		Wheat peptide



	Yeast powder, deproteinated		Ammonium laureth sulfate
			Ammonium lauryl sulfate
	<u>Coupling agent</u>		Capramide DEA
	Acetyl monoethanolamine		Cocamidopropyl dimethylamine lactate
5	Butyloctanol		Decyl glucoside
	Myreth-3		Decyltetradeceth-25
	Oleyl alcohol		DEA lauryl sulfate
	PPG-10 butanediol		Diamyl sodium sulfosuccinate
	PPG-10 ceryl ether		Dicyclohexyl sodium sulfosuccinate
10	PPG-10 oleyl ether		Diisobutyl sodium sulfosuccinate
	PPG-15 stearyl ether		Disodium caproamphodiacetate
	PPG-22 butyl ether		Disodium caproamphodipropionate
	PPG-23 oleyl ether		Disodium capryloamphodiacetate
	PPG-50 oleyl ether		Disodium capryloamphodipropionate
15	Trideceth-7 carboxylic acid		Disodium cetearyl sulfosuccinate
	<u>Denaturant</u>		Disodium cocamido MEA-sulfosuccinate
	Brucine sulfate		Disodium cocamido MIPA-sulfosuccinate
	Denatonium benzoate, saccharide		Disodium cocoamphodipropionate
20	Nicotine sulfate		Disodium deceth-6 sulfosuccinate
	Sucrose octaacetate		Disodium isodecyl sulfosuccinate
	Thymol		Disodium lauramido MEA-sulfosuccinate
	<u>Dental powder</u>		Disodium lauramido PEG-2 sulfosuccinate
25	Dicalcium phosphate		Disodium laureth sulfosuccinate
	Silica		Disodium lauroamphodiacetate
	Sodium monofluorophosphate		Disodium lauroamphodipropionate
	Stannous fluoride		Disodium lauryl sulfosuccinate
	<u>Deodorant</u>		Disodium myristamido MEA-sulfosuccinate
30	Abietic acid		Disodium nonoxynol-10 sulfosuccinate
	Azadirachta indica extract		Disodium oleamido PEG-2 sulfosuccinate
	Chlorophyllin-copper complex		Disodium PEG-4 cocoamido MIPA-sulfosuccinate
	Eugenia jambolana extract		Disodium ricinoleamido MEA-sulfosuccinate
35	Farnesol		Disodium tallowiminodipropionate
	Fermented vegetable		Dodecylbenzene sulfonic acid
	Mauritia flexosa extract		Dodoxynol-6, -9
	Salvia miltiorrhiza extract		Isopropylamine dodecylbenzenesulfonate
	Sodium aluminum chlorohydroxy lactate		Isostearamidopropyl betaine
40	Spondias amara extract		Isosteareth-6 carboxylic acid
	Triethyl citrate		Isostearoamphopropionate
	Zinc phenol sulfonate, Z. ricinoleate		Isostearyl hydroxyethyl imidazoline
	<u>Depilatory</u>		Lauramidopropylamine oxide
45	Barium sulfide		Laureth-11
	Beeswax, oxidized		Lauroampho PG-glycinate phosphate
	Calcium thioglycolate		Lauryl glucoside, L. phosphate
	L-cysteine HCL		Magnesium laureth sulfate, M. lauryl sulfate
	Potassium thioglycolate		Magnesium PEG-3 cocamide sulfate
50	Sodium thioglycolate		MEA-dodecylbenzenesulfonate
	Thioglycerin		MEA-laureth sulfate
	<u>Detergent</u>		MEA-lauryl sulfate
			MIPA-lauryl sulfate
			Myristamine oxide
			Myristic acid
			Nonoxynol-10

- Oleoamphohydroxypropyl sulfonate  
 Oleth-12, -15  
 Oleyl betaine  
 Palmitamidopropyl betaine  
 5 PEG-10 glyceryl stearate  
 PEG-15 glyceryl stearate  
 PEG-25 glyceryl isostearate  
 Potassium cocoyl hydrolyzed collagen  
 Sodium caproamphoacetate  
 10 Sodium cocoamphoacetate  
 Sodium cocoamphopropionate  
 Sodium cocomonoglyceride sulfate  
 Sodium cocoyl hydrolyzed soy protein  
 Sodium cocoyl isethionate  
 15 Sodium C12-15 pareth-25 sulfate  
 Sodium C14-16 olefin sulfonate  
 Sodium C14-17 alkyl secsulfonate  
 Sodium deceth sulfate  
 Sodium decyl diphenyl ether sulfonate  
 20 Sodium dodecylbenzenesulfonate  
 Sodium dodecyldiphenyl ether sulfonate  
 Sodium iodate  
 Sodium laureth-2 sulfate  
 Sodium laureth-3 sulfate  
 25 Sodium laureth-7 sulfate  
 Sodium laureth-12 sulfate  
 Sodium laureth-13-carboxylate  
 Sodium laureth sulfate  
 Sodium lauriminodipropionate  
 30 Sodium lauroamphopropionate  
 Sodium lauroyl methyl alaninate  
 Sodium lauryl phosphate, S.I. sulfate  
 Sodium lauryl sulfoacetate  
 Sodium methyl oleoyl taurate  
 35 Sodium methyl cocoyl taurate  
 Sodium methyl lauroyl taurate  
 Sodium methyl naphthalenesulfonate  
 Sodium myreth sulfate  
 Sodium myristyl sulfate  
 40 Sodium octyl sulfate, oleyl sulfate  
 Sodium POE alkyl ether acetate  
 Sodium trideceth-7 carboxylate  
 Sodium trideceth sulfate  
 Sodium tridecyl sulfate  
 45 Steareth-11, -30  
 TEA-dodecylbenzenesulfonate  
 TEA-laureth sulfate  
 TEA-lauryl sulfate  
 TEA-palm kernel sarcosinate  
 50 TEA-PEG-3 cocamide sulfate  
 Undecylenamidopropyl betaine

**Disinfectant**

Benzalkonium chloride  
 Chlorophene  
 Didecyldimonium chloride  
 Myristalkonium saccharinate  
 Shikonin  
 Sodium capryloamphoacetate  
 Tea tree (*Melaleuca alternifolia*) oil  
 p-Tertarylphenol

**Dispersant**

Alkylated polyvinylpyrrolidone  
 C20-40, C30-50, C40-60 alcohols  
 Castor (*Ricinus communis*) oil  
 Cetareth-20  
 Cetyl PPG-2 isodeceth-7 carboxylate  
 Cholesteryl/beheryl/octyldodecyl lauroyl  
 glutamate  
 Decaglycerol monodioleate  
 Diisocetyl dodecanedioate  
 Diisostearyl adipate  
 Dimethicone copolyol methyl ether  
 Dioctyldodecyl dimer dilinoleate  
 Dioctyldodecyl dodecanedioate  
 Ethyl hydroxymethyl oleyl oxazoline  
 Glyceryl caprylate, G. caprylate/caprate  
 Glyceryl diisostearate  
 Hydrogenated castor oil, H. lecithin  
 Hydrogenated tallow glycerides  
 Isobutylene/MA copolymer  
 Isocetyl alcohol  
 Isopropyl C12-15-pareth-9-carboxylate  
 Isostearyl neopentanoate  
 Lanolin acid  
 Laureth-4, -6, -16  
 Melanin  
 Nonoxynol-2, -18, -20, -30, -40  
 Octoxynol-5, -10  
 Octoxynol 16, 30, 40, 70  
 Octyldodeceth-5  
 Octyldodecyl/dimethicone copolyol citrate  
 Oleth-40  
 Oleyl alcohol  
 PEG-5 castor oil, glyceryl sesquioleate  
 PEG-6 beeswax  
 PEG-8/SMDI copolymer  
 PEG-9 castor oil, oleate, stearate  
 PEG-10 dioleate, stearamine  
 PEG-12 beeswax  
 PEG-12 glyceryl dioleate, laurate  
 PEG-15 castor oil  
 PEG-20 almond glycerides  
 PEG-20 glyceryl isostearate  
 PEG-20 sorbitan triisostearate

	PEG-25 castor oil	Behenamidopropyl dihydroxypropyl dimonium chloride
	PEG-30 dipolyhydroxystearate	Behenoxy dimethicone
	PEG-40 hydrogenated castor oil PCA isostearate	Behenyl alcohol, B. behenate
	PEG-60 shea butter glycerides	Behenyl erucate, B. isostearate
5	Poloxamer 101, 122, 181, 182, 184	Benzyl laurate
	Polyglyceryl-2 sesquiisostearate	Bladderwrack ( <i>Fucus vesiculosus</i> ) extract
	Polyglyceryl-3 diisostearate, oleat	Borage ( <i>Borago officinalis</i> ) seed oil
	Polyglyceryl-5 distearate	Borageamidopropyl phosphatidyl PG-dimonium chloride
10	Polyglyceryl-6 mixed fatty acids	Brain extract
	Polyglyceryl-10 diisostearate, distearate	Brazil nut ( <i>Bertholletia excelsa</i> ) oil
	Polyglyceryl-10 decaoleate	Butyl myristate, oleate, stearate
	Polyhydroxystearic acid	Butyloctanol
	Polysorbate 40, 80	Butyloctyl oleate
15	Potassium polyacrylate	C12-13, C12-16, C14-15 alcohols
	PPG-3 PEG-6 oleyl ether	C12-15 alcohols octanoate
	PPG-9 diethylmonium phosphate	C12-15 alkyl benzoate
	PPG-12/SMDI Copolymer	dl-C12-15 alkyl fumarate
	PPG-15 stearyl ether	C12-15 alkyl lactate
	PPG-25, PPG-40 diethylmonium chloride	Camellia kissi oil
20	PPG-51/SMDI Copolymer	Tea ( <i>Camellia sinensis</i> ) oil
	PVP/eicosene copolymer	C10-30 cholesterol/lanostearol esters
	PVP/hexadecene copolymer	Canola oil
	Rapeseed oil, ethoxylated high erucic acid	Caprylic/capric triglyceride
	Ricinoleyl alcohol	Caprylic/capric triglyceride PEG-4 esters
25	Sodium ceteth-13-carboxylate	Caprylic/capric/lauric triglyceride
	Sodium lignosulfonate, S. polymethacrylate	Caprylic/capric/linoleic triglyceride
	Sodium polynaphthalenesulfonate	Caprylic/capric/oleic triglycerides
	Sorbitan oleate	Caprylic/capric/stearic triglyceride
	Steareth-10	Caprylic/capric/succinic triglyceride
30	Tricontanyl PVP	Capsicum frutescens oleoresin
	Triisostearin PEG-6 esters	Carrot ( <i>Daucus carota sativa</i> ) oil
	Trioctyldodecyl citrate	Cashew ( <i>Anacardium occidentale</i> ) nut oil
	<b>Emollient</b>	Castor ( <i>Ricinus communis</i> ) oil
35	Acetylated glycol stearate	Cetearyl behenate, C. candelillate
	Acetylated hydrogenated lanolin	Cetearyl isononanoate, C. octanoate
	Acetylated hydrogenated lard glyceride	Cetearyl palmitate, C. stearate
	Acetylated hydrogenated vegetable glyceride	Ceteth-10
	Acetylated lanolin, A.I. alcohol	Cetostearyl stearate
40	Acetylated lard glyceride	Cetyl C12-15 pareth-9 carboxylate
	Acetylated monoglycerides	Cetyl acetate, C. alcohol
	Acetylated palm kernel glycerides	Cetyl esters, C. lactate
	Aleurites moluccana ethyl ester	Cetyl myristate, C. octanoate
	Allantoin	Cetyl oleate, C. palmitate
45	Aluminum/magnesium hydroxide stearate	Cetyl PPG-2 isodeceth-7 carboxylate
	AMP-isostearoyl hydrolyzed soy protein	Cetyl ricinoleate, C. stearate
	Apricot ( <i>Prunus armeniaca</i> ) kernel oil	Cetyl stearyl octanoate
	Arachidyl behenate	Chia ( <i>Salvia hispanica</i> ) oil
	Argania spinosa oil	Cholesteric esters
50	Avocado ( <i>Persea gratissima</i> ) oil, unsaponifiables	Cholesterol
	Avocado oil ethyl ester	Cholesteryl/beheryl/octyldodecyl lauroyl glutamate
	Babassu ( <i>Orbignya oleifera</i> ) oil	
	Baryl isostearate, B. stearate	

	Cholesteryl hydroxystearate	Dimethiconol stearate
	Cholesteryl stearate	Dimethyl lauramine oleate
	Choleth-24	Dioctyl adipate
	C18-70 Isoparaffin	Dioctyl dimer dilinoleate
5	C10-18, C12-18 triglycerides	Dioctylcyclohexane
	C12-15 linear alcohols 2-ethylhexanoate	Dioctyldodecyl dimer dilinoleate
	Cocamidopropyl PG-dimonium chloride	Dioctyldodecyl dodecanedioate
	Cocoa (Theobroma cacao) butter	Dioctyl malate, D. sebacate, succinate
	Coco-caprylate/caprate	Dipentaerythritol fatty acid ester
10	Coco-rape seedate	Dipentaerythrityl hexacaprylate/hexacaprate
	Coconut (Cocos nucifera) oil	Dipentaerythrityl hexahydroxystearate/isostearate
	Cocoyl hydrolyzed soy protein	Distearyl dimethylamine dilinoleate
	Collagen hthalate	Ditridecyl adipate
	Colloidal oatmeal	Dog rose (Rosa canina) hips oil
15	Comfrey (Symphytum officinale) leaf extract	Egg (Ovum) yolk extract
	Corn (Zea mays) oil	Emu (Dromiceius) oil
	Corn poppy (Papaver rhoeas) extract	Erucyl erucate
	Cottonseed (Gossypium) oil	Ethyl avocadoate
	Cuttlefish extract	Ethylhexyl isopalmitate
20	Cyclomethicone	2-Ethylhexyl isostearate
	Deceth-4 phosphate	Ethyl linoleate, E. myristate
	Decyl oleate	Ethyl myristate, E. myristate
	Decyltetradecanol	Ethyl oleate, E. olivate
	Dialkyldimethylpolysiloxane	Evening primrose (Oenothera biennis) extract, oil
25	Dibutyl sebacate	Glycereth-4,5-lactate
	Dicapryl adipate	Glycereth-5 lactate
	Dicaprylyl ether, D. maleate	Glycereth-7 benzoate
	Diethylene glycol diisononanoate	Glycereth-7 diisononanoate
	Diethylene glycol dioctanoate	Glycereth-7 triacetate
30	bis-Diglyceryl/caprylate/caprate/isostearate/ hydroxystearate/adipate	Glycereth-7 trioctanoate
	bis-Diglyceryl/caprylate/caprate/isosteareth/ stearate/hydroxystearate/adipate	Glycereth-12, -26
	Dihydroabietyl behenate	Glycerol tricaprylate/caprate
35	Dihydroxyethyl tallowamine oleate	Glyceryl adipate, G. dioleate
	Diisobutyl adipate	Glyceryl isostearate, G. lanolate
	Diisocetyl adipate, dodecanedioate	Glyceryl linoleate, G. monopyroglutamate
	Diisodecyl adipate	Glyceryl myristate, G. oleat
	Diisopropyl adipate, dimer dilinoleate	Glyceryl ricinoleate
40	Diisopropyl sebacate	Glyceryl triacetyl hydroxystearate
	Diisostearoyl trimethylolpropane siloxy silicate	Glyceryl triacetyl ricinoleate
	Diisostearyl adipate	Glycosaminoglycans
	Diisostearyl dimer dilinoleate	Glycosophingolipids
	Diisostearyl fumarate, D. malate	Gold of Pleasure oil
45	Dilinoleic acid	Grape (Vitis vinifera) seed oil
	Dimethicone	Hazel (Corylus avellana) nut oil
	Dimethicone copolyol	Helianthus annuum ethyl ester
	Dimethicone copolyol acetate, D.c. almondate	Hexadecyl isopalmitate
50	Dimethicone copolyol isostearate, D.c. lactate	Hexamethyldisiloxane
	Dimethicone copolyol methyl ether	hexyl laurate
	Dimethicone copolyol phthalate	hexyldecanol
	Dimethicone propylethylenediamine behenate	Hexyldecanol stearate
		honey extract
		Hybrid safflower (Carthamus tinctorius) oil
		Hybrid sunflow (Helianthus annus) oil

	Hydrogenated C6-14 olefin polymers	Isosorbide laurate
	Hydrogenated castor oil	Isostearic acid
	Hydrogenated castor oil laurate	Isostearyl alcohol
	hydrogenated coconut oil	Isostearyl behenate, I. benzoate
5	Hydrogenated cottonseed oil	Isostearyl diglyceryl succinate
	Hydrogenated C12-18 triglycerides	Isostearyl erucate, I. erucyl erucate
	Hydrogenated lanolin	Isostearyl isostearate, I. lactate
	Hydrogenated lanolin, distilled	Isostearyl malate, I. myristate
	Hydrogenated lecithin	Isostearyl neopentanoate, palmitate
10	Hydrogenated milk lipids	Isostearyl stearoyl stearate
	Hydrogenated mink oil	Isostearylamidopropyl dihydroxypropyl dimonium chloride
	Hydrogenated palm kernel glycerides	Isotridecyl isononanoate
	Hydrogenated palm oil	Isotridecyl myristate
	Hydrogenated polyisobutene	Jojoba ( <i>Buxus chinensis</i> ) oil
15	Hydrogenated soybean oil	Jojoba butter, J. esters
	Hydrogenated starch hydrolysate	Jojoba oil, synthetic
	Hydrogenated tallow glyceride	Kukui ( <i>Aleurites molaccana</i> ) nut oil
	Hydrogenated tallow glyceride lactate	Lactamide DGA
	Hydrogenated turtle oil	Laneth-10 acetate
20	Hydrogenated vegetable glycerides	Lanolin, L. acid
	Hydrogenated vegetable oil	Lanolin alcohol, L. oil
	Hydrolyzed collagen	Lanolin, ultra anhydrous
	Hydrolyzed conchiorin protein	Lanolin wax
	Hydrolyzed keratin	Lanostearol
25	Hydrolyzed mushroom ( <i>Tricholoma matsutake</i> ) extract	Lard glyceride
	Hydrolyzed oat protein	Laureth-2, -3
	Hydroxylated lanolin	Laureth-2 acetate, L. benzoate
	Hydroxylated milk glycerides	Laureth-2-octanoate
30	Hydroxystearic acid	Lauric/palmitic/oleic triglyceride
	butter	Lauryl behenate, L. lactate
	Isobutyl palmitate, I. stearate	Lauryl phosphae
	Isoceryl behenate, I. octanoate	Lauryldimethylamine isostearate
	Isoceryl palmitate, I. salicylate	Lesquereila fendleri oil
35	Isoceryl stearate	Linoleic acid
	Isodeceth-2 cocoate	Macadamia ternifolia nut oil
	Isodecyl citrate, I. cocoate	Maleated soybean oil
	Isodecyl isononanoate, I. laurate	Mango ( <i>Magnifera indica</i> ) oil, seed oil
	Isodecyl neopentanoate	Mango kernel oil
40	Isodecyl octanoate, I. oleate	Meadowfoam ( <i>Limnanthes alba</i> ) seed oil
	Isodecyl stearate	Menhaden ( <i>Brevoortia tyrannus</i> ) oil
	Isododecane	Methyl acetyl ricinoleate
	Isoeicosane	Methyl gluceth-20
	Isohexadecane	Methyl gluceth-20 benzoate, M.g. distearate
45	isononyl isononanoate	Methyl hydroxystearate, M. ricinoleate
	Isopentyldiol	Microcrystalline wax
	Isopropyl avocadate	Mineral oil ( <i>Paraffinum liquidum</i> )
	Isopropyl C12-15-pareth-9-carboxylate	Mink oil
	Isoproyl isostearate	Musk rose ( <i>Rosa moschata</i> ) oil
50	Isopropyl lanolate, I. linoleate	Myreth-3
	Isopropyl myristate, I. palmitate	Myreth-3 caprate, M. laurate
	Isopropyl PPG-2-isodeceth-7 carboxylate	Myreth-3 myristate, M. octanoate
	Isopropyl sterate	Myristyl alcohol, M. lactate

	Myristyl myristate, M. octanoate	PEG-9 stearyl stearate
	Myristyl propionate, M. stearate	PEG-10 stearyl stearate
	Neatsfoot oil	PEG-12
5	Neem ( <i>Melia azadirachta</i> ) seed oil	PEG-12 dioleate, P. palm kernel glycerides
	Neopentyl glycol dicaprate	PEG-15 cocamine oleate/phosphate
	Neopentyl glycol dicaprate/dicaprylate	PEG-18
	Neopentyl glycol diisooctanoate	PEG-20
	Neopentyl glycol dioctanoate	PEG-20 hydrogenated castor oil isostearate
10	Oat ( <i>Avena sativa</i> ) bran extract, extract, flour	PEG-20 hydrogenated castor oil triisostearate
	Octacosanyl stearate	PEG-20 hydrogenated lanolin
	Octyl cocoate	PEG-24 hydrogenated lanolin
	Octyl hydroxystearate, O. isononanoate	PEG-25 PABA, P. propylene glycol stearate
	Octyl neopentanoate, O. octanoate	PEG-40 glyceryl laurate
	Octyl oleate, O. palmitate	PEG-40 hydrogenated castor oil isostearate
15	Octyl pelargonate, O. stearate	PEG-40 hydrogenated castor oil laurate
	Octyldodecanol	PEG-40 hydrogenated castor oil triisostearate
	Octyldodecanol	PEG-40 jojoba oil
	Octyldodecyl behenate, O. benzoate	PEG-50 hydrogenated castor oil laurate
	Octyldodecyl erucate, O. myristate	PEG-50 hydrogenated castor oil triisostearate
20	Octyldodecyl oleate, O. ricinoleate	PEG-60 shea butter glycerides
	Octyldodecyl stearate	PEG-70 mango glycerides
	bis-Octyldodecyl stearyl dimer dilinoleate	PEG-75
	Octyldodecyl stearyl stearate	PEG-75 lanolin, P. shea butter glycerides
	Oleamine oxide	PEG-75 shorea butter glycerides
25	Oleic/palmitoleic/linoleic glycerides	PEG-150
	Oleic alcohol	PEG/PPG-17/6 copolymer
	Oleostearine	Pentaerythrityl dioleate
	Oleyl alcohol, O. erucate, O. oleate	Pentaerythrityl
	Olive ( <i>Olea europaea</i> ) oil	isostearate/caprate/caprylate/adipate
30	Orange ( <i>Citrus aurantium dulcis</i> ) peel wax	Pentaerythrityl stearate
	Orange roughy ( <i>Hoplostethus atlanticus</i> ) oil	Pentaerythrityl stearate/caprate/caprylate/adipate
	Palm ( <i>Elaeis guineensis</i> ) oil	Pentaerythrityl tetracaprylate/tetracaprate
	Palm kernel glycerides	Pentaerythrityl tetraisononanoate, P.
	Palmitic acid	tetraisostearate
35	Panthenyl triacetate	Pentaerythrityl tetralaurate, P. tetraoctanoate
	Partially hydrogenated canola oil	Pentaerythrityl tetraoleate, P. tetrapelargonate
	Partially hydrogenated soybean oil	Pentaerythrityl tetrastearate
	Peach ( <i>Prunus persica</i> ) extract	Perfluorodecalin
	Peanut ( <i>Arachis hypogaea</i> ) oil	Perfluoropolymethylisopropyl ether
40	PEG-2 diisononanoate, P. dioctanoate	Petrolatum
	PEG-2 milk solids	Phenethyl dimethicone
	PEG-4	Phenyl dimethicone, P. methicone, P.
	PEG-4 diheptanoate, P. dilaurate	trimethicone
	PEG-5 C8-12 alcohols citrate	Phytantriol
45	PEG-5 C14-18 alcohols citrate	Pistachio ( <i>Pistacia vera</i> ) nut oil
	PEG-5 hydrogenated castor oil	Placental enzymes
	PEG-5 hydrogenated castor oil triisostearate	Pollen extract
	PEG-6	Poloxamer 105 benzoate
	PEG-6 capric/caprylic glycerides	Poloxamer 182 dibenzoate
50	PEG-7 glyceryl cocoate	Polybutene
	PEG-8	Polydecene
	PEG-8 dilaurate, P. dioleate	Polydimethicone copolyol
	PEG-8/SMDI copolymer	Polyethylene glycol

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|----|---|--|
|    | Polyglyceryl-2 diisostearate, P. tetraisostearate | PPG-30   |
|    | Polyglyceryl-2 triisostearate                     | PPG-30 cetyl ether                               |
|    | Polyglyceryl-3 diisostearate, P. oleate           | PPG-40 butyl ether                               |
|    | Polyglyceryl-3 stearate                           | PPG-50 cetyl ether, P. oleyl ether               |
| 5  | Polyglyceryl-6 dioleate                           | PPG-51/SMDI Copolymer                            |
|    | Polyglyceryl-10 decaoleate, P. decastearate       | PPG-53 butyl ether                               |
|    | Polyglyceryl-10 tetraoleate                       | Propylene glycol ceteth-3 acetate                |
|    | Polyisobutene                                     | Propylene glycol dicaprylate                     |
|    | Polyisobutene/isohexapentacontahectane            | Propylene glycol dicaprylate/dicaprate           |
| 10 | Polyisobutene/isooctabexacontane                  | Propylene glycol diisostearate, P.g. dioctanoate |
|    | Polyisobutene/isopentacontaoctane                 | Propylene glycol dipelargonate                   |
|    | Polyisoprene                                      | Propylene glycol isoceteth-3-acetate             |
|    | Polyoxyethylene polyoxypropylene glycol           | Propylene glycol isostearate, P.g. laurate       |
|    | Polyquaternium-2                                  | Propylene glycol myristate                       |
| 15 | Polysiloxane polyalkylene copolymer               | Propylene glycol myristyl ether acetate          |
|    | Polysorbate 40                                    | Propylene glycol stearate, SE                    |
|    | Potassium dimethicone copolyol phosphate          | Pumpkin (Cucurbita pepo) seed oil                |
|    | PPG-2-buteth-3                                    | Quinoa (Chenopodium quinoa) oil                  |
|    | PPG-2 lanolin alcohol ether                       | Rapeseed (Brassica campestris) oil               |
| 20 | PPG-2 myristyl ether propionate                   | Rice (Oryza sativa) bran oil, bran wax           |
|    | PPG-3 hydrogenated castor oil                     | Rice fatty acid                                  |
|    | PPG-3 myristyl ether                              | Safflower (Carthamus tinctorius) oil             |
|    | PPG-5-buteth-7                                    | Salmon (Salmo) egg extract                       |
|    | PPG-5-laureth-5                                   | Sesame (Sesamum indicum) oil                     |
| 25 | PPG-5 butyl ether                                 | Shark liver oil                                  |
|    | PPG-5 lanolin wax                                 | Shea butter (Butyrospermum parkii)               |
|    | PPG-5 pentaerythrityl ether                       | Shea butter (Butyrospermum parkii) extract       |
|    | PPG-7-buteth-10                                   | Shea butter, ethoxylate                          |
|    |   | Shorea stenoptera butter                         |
| 30 | PPG-8/SMDI copolymer                              | Silybum marianum ethyl ester                     |
|    | PPG-9   | Sitostearyl acetate                              |
|    | PPG-9-buteth-12                                   | Skin lipids                                      |
|    | PPG-9 butyl ether                                 | Slippery elm extract                             |
|    | PPG-10 butanediol, P. cetyl ether                 | Sodium C8-16 isoalkylsuccinyl lactoglobulin      |
| 35 | PPG-10 methyl glucose ether                       | sulfonate  |
|    | PPG-10 oleyl ether                                | Sodium carboxymethyl beta-glucan                 |
|    | PPG-11 stearyl ether                              | Sodium ceteth-13-carboxylate                     |
|    | PPG-12-buteth-16                                  | Sodium dimethicone copolyol acetyl               |
|    | PPG-12-PEG-50 lanolin                             | methylaurate                                     |
| 40 | PPG-12-PEG-65 lanolin oil                         | Soium glyceryl oleate phosphate                  |
|    | PPG-12/SMDI Copolymer                             | Sodium hyaluronate, S. polymethacrylate          |
|    | PPG-14 butyl ether                                | Sorbeth-20                                       |
|    | PPG-15 butyl ether, P. stearyl ether              | Sorbitan isostearate, S. palmitate               |
|    | PPG-15 stearyl ether benzoate                     | Sorbitan sesquioleate, S. sesquistearate         |
| 45 | PPG-16 butyl ether                                | Sorbitan trioleate                               |
|    | PPG-18 butyl ether                                | Soybean (Glycine soja) oil                       |
|    | PPG-20  | Spermaceti                                       |
|    | PPG-20-buteth-30                                  | Sphingolipids                                    |
|    | PPG-20 cetyl ether                                | Squalene   |
| 50 | PPG-24-glycereth-24                               | Stearamidopropyl cetearyl dimonium tosylate      |
|    | PPG-26  | Steareth-4 stearate                              |
|    | PPG-27 glyceryl ether                             | Stearic acid, S. hydrazide                       |
|    | PPG-28-buteth-35                                  | Stearoxy dimethicone                             |

	Stearoxymethicone/dimethicone copolymer	2-Aminobutanol
	Stearyl behenate, S. benzoate	Ammonium acrylates/acrylonitrogens copolymer
	Stearyl dimethicone, S. erucate	Arachidyl alcohol
	Stearyl heptanoate, S. propionate	Beeswax
5	Stearyl stearate	Behenamidopropyl dihydroxypropyl dimonium chloride
	Stearyl stearoyl stearate	Beheneth-5, -10, -20, -30
	Sucrose cocoate	Behenic acid
	Sunflower ( <i>Helianthus annuus</i> ) seed oil	Behenyl betain
10	Sweet almond ( <i>Prunus amygdalus dulcis</i> ) oil	Borageamidopropyl phosphatidyl PG-dimonium chloride
	Sweet cherry ( <i>Prunus avium</i> ) pit oil	Buryloctanol
	Synthetic jojoba oil	C12-20 acid PEG-8 ester
	Synthetic wax	C18-36 acid
	Tallow	Calcium dodecylbenzene sulfonate
	Tetradecyleicosyl stearate	Calcium protein complex
15	Tocopheryl acetate	Calcium stearate
	Tricaprin	Calcium stearoyl lactylate
	Tricaprylin	Capramide DEA
	Tricaprylyl citrate	Caprylic/capric acid
20	Tricholoma matsutake extract	Caprylic/capric glycerides
	Tridecyl behenate, T. cocoate	Castor oil, ethoxylate
	Tridecyl erucate, T. neopentanoate	Cetalkonium chloride
	Tridecyl octanoate, T. stearate	Ceteareth-2 -4 -5 -6
	Tridecyl stearoyl stearate	Ceteareth-2 phosphate
	Tridecyl trimellitate	Ceteareth-5 phosphate
25	Trihexyldecyl citrate	Ceteareth-8 -10 -11 -12
	Triisoceryl citrate	Ceteareth-10 phosphate
	Triisostearyl citrate	Ceteareth-15 -17 -20 -25
	Triisostearyl trilinoleate	Ceteareth-27 -29 -30 -34
30	Trilaurin	Cetearyl alcohol
	Trilinolein	Cetearyl glucoside
	Trimethylolpropane tricaprylate/tricaprate	Ceteth-2 -4 -6 -10 -12 -13
	Trimethylolpropane tricocoate	Ceteth-16 -20 -25 -30 -33
	Trimethylolpropane trilaurate	Cetethyldimonium bromide
35	Trimyristin	Cetrimonium chloride
	Trioctanoin	Cetyl dimethicone copolyol
	Trioctyldodecyl citrate	Cetyl phosphate
	Triolein	Cholesterol
	Tripalmitin	Choleth-10 -15 -24
40	Tripropylene glycol citrate	Cocamide DEA, C. MEA
	Tristearin	Cocamidopropyl dimethylamine
	Triundecanoin	Cocamidopropyl PG-dimonium chloride phosphate
	Vegetable oil	Cocamine
45	Walnut ( <i>Juglans regia</i> ) oil	Coceth-7 carboxylic acid
	Wheat ( <i>Triticum vulgare</i> ) germ oil	Coconut acid
	<b>Emulsifier</b>	Copper protein complex
	Acetylated hydrogenated lard glyceride	Cottonseed glyceride
50	Acetylate hydrogenated vegetable glyceride	C12-13 pareth-3 -4 -9 -23
	Acetylated monoglycerides	C16-18 pareth-3 -5.5 -13 -19
	Acrylates/C10-C30 alkyl acrylate crosspolymer	Cyclodextrin
	Acrylates/vinyl isodecanoate crosspolymer	Decaglycerol monodioleate
	Acrylic acid/acrylonitrogens copolymer	



	DEA-cetareth-2-phosphate	Glyceryl ricinoleate SE
	DEA-ceryl phosphate	Glyceryl stearate, G. stearate citrate
	DEA-cyclocarboxypropyloleate	Glyceryl stearate lactate
	DEA-oleth-3-phosphate	Glyceryl stearate SE
5	DEA-oleth-5-phosphate	Glyceryl undecylenate
	DEA-oleth-10-phosphate	Glycol distearate, G. oleate
	DEA-oleth-20-phosphate	Glycol palmitate, G. stearate
	Dicetareth-10 phosphoric acid	Glycol stearate SE
	Diethanolamine	Glycolamide stearate
10	Diethylaminoethyl stearate	Glycosphingolipids
	Diglyceryl stearate malate	Hydrogenated coco-glycerides
	Dihydrocholeth-15 -20 -30	Hydrogenated cottonseed glyceride
	Dihydrogenated tallow phthalic acid amide	Hydrogenated lanolin
	Dilauryl acetyl dimonium chloride	Hydrogenated lecithin
15	Dilinoleamidopropyl dimethylamine dimethicone copolyol phosphate	Hydrogenated palm oil
	Dilinoleic acid	Hydrogenated soy glyceride
	Dimethicone copolyol almondate	Hydrogenated tallow glycerides
	Dimethicone copolyol isostearate	Hydrogenated tallow glycerides citrate
20	Dimethicone copolyol laurate	Hydroxycetyl phosphate
	Dimethicone copolyol methyl ether	Hydroxylated lanolin
	Dimethicone copolyol olivate	Hydroxylated lecithin
	Dimethicone copolyol phthalate	Hydroxyoctacosanyl hydroxystearate
	Dipalmitoylethyl hydroxyethylmonium	Hydroxypropyl-bis-
25	methosulfate	isostearyamidopropyldimonium chloride
	Dipropylene glycol	Isocetareth-8 stearate
	Disodium hydrogenated cottonseed glyceride sulfosuccinate	Isoceteth-10 stearate
	Disodium ricinoleamido MEA-sulfosuccinate	Isoceteth-20
30	Disodium stearyl sulfosuccinate	Isocetyl alcohol
	Disodium sulfosuccinamide	Isolaureth-6
	Distearyl phthalic acid amide	Isostearamidopropyl dimethylamine gluconate
	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate) ammonium chloride	Isostearamidopropyl dimethylamine glycolate
35	Dodecylphenol-ethylene oxide condensate	Isostearamidopropyl laurylacetodimonium chloride
	Egg (Ovum) yolk extract	Isosteareth-2 -3 -10 -12 -20 -22 -50
	Emulsifying wax NF	Isosteareth-2-octanoate
	Ethoxylated fatty alcohol	Isosteareth-10 stearate
	N-Ethylether-bis-1,4-(N-isostearylamidopropyl-N,N-dimethyl ammonium chlo	Isostearic acid
40	Ethyl hexanediol	isostearyl diglyceryl succinate
	Euglena gracilis polysaccharide	Isostearylamidopropyl dihydroxypropyl dimonium chloride
	Glycereth-26 phosphate	Karaya (Sterculia urens) gum
	Glyceryl caprylate, G. caprylate/caprata	Laneth-5 -10 -15 -16 -20 -40
45	Glyceryl citrate/lactate/linoleate/oleate	Laneth-10 acetate
	Glyceryl cocoate, G. dilaurate	Lanolin
	Glyceryl dilaurate, G. dioleate	Lanolin alcohol
	Glyceryl distearate, G. hydroxystearate	Lanolin, ultra anhydrous
	Glyceryl isostearate, G. lanolate	Lanolin wax
50	Glyceryl laurate, G. linoleate	Lauramide DEA, L. MEA
	Glyceryl mono-di-tri-caprylate	Lauramidopropyl dimethylamine
	Glyceryl myristate, G. oleate	Lauramidopropyl PG-dimonium chloride
	Glyceryl palmitate, G. ricinoleate	Laureth-1 -2 -3 -4 -5
		Laureth-2-octanoate
		Laureth-3 phosphate

	Laureth-4 carboxylic acid	PEG-3 cocamide
	Laureth-5 carboxylic acid	PEG-3 C12-C18 alcohols
	<del>Laureth-6 -7 -9 -11 -12</del>	PEG-3 glyceryl isostearate
	Laureth-11 carboxylic acid	PEG-3 glyceryl triisostearate
5	Laureth-16 -20 -23 -25 -30	PEG-3 glyceryl tristearate
	Lauryl PCA	PEG-3 lanolate, P. sorbitan oleate
	Laurylmethicone copolyol	PEG-3 stearate
	Lecithin	PEG-4 dioleate, P. diisostearate
10	Linoleamidopropyl PG-dimonium chloride phosphate	PEG-4 dilaurate, P. distearate
	Lithium stearate	PEG-4 glyceryl distearate
	Magnesium sulfate hepta-hydrate	PEG-4 laurate, P. oleate
	Maleated soybean oil	PEG-4 stearate
	Methoxy PEG-17/dodecyl glycol copolymer	PEG-4 stearyl stearate
15	Methyl gluceth-20 distearate	PEG-4 tallate
	methyl glucose dioleate, M.g. sesquiosstearate	PEG-5 castor oil, P. cocamine
	Methyl glucose sesquistearate	PEG-5 C12-C18 alcohols
	MEA-laureth sulfate	PEG-5 glyceryl isostearate
	Myreth-3 -4 -7	PEG-5 glyceryl sesquioleate
20	Myreth-3 myristate	PEG-5 glyceryl stearate
	Myristamidopropyl dimethylamine	PEG-5 glyceryl triisostearate
	Nonoxynol-1 -2 -4 -5 -6 -7	PEG-5 lanolate, P. oleamine
	Nonoxynol-8 -9 -10 -11 -12 -13	PEG-5 soy sterol, P. soyamine
	Nonoxynol-14 -15 -18 -20 -30 -40 -50	PEG-5 stearamine, P. stearate
25	Nonyl nonoxynol-5 -10	PEG-5 tallow amine
	Oat (Avena sativa) flour	PEG-6 capric/caprylic glycerides
	Octoxynol-1 -3 -5 -8 -10	PEG-6 cocamide
	Octoxynol 16, 30, 40	PEG-6 C12-14 ether
	2-Octyl dodecyl alcohol	PEG-6 dilaurate, P. dioleate
30	Octyldodecanol	PEG-6 distearate, P. isostearate
	Octyldodeceth-20 -25	PEG-6 lauramide, P. laurate
	Oleamide DEA	PEG-6 oleate, P. palmitate
	Oleamidopropyl dimethylamine	PEG-6 sorbitan beeswax
	Oleamine oxide	PEG-6 sorbitan laurate
35	Oleic acid	PEG-6 sorbitan oleate
	Oleth-2 -3 -4 -5 -6 -7 -8 -9	PEG-6 sorbitan stearate
	Oleth-10 -12 -15 -20 -23	PEG-6 stearate
	Oleth-25 -30 -40 -50	PEG-6-32
	Oleth 13	PEG-6-32 stearate
40	Oleth-2 phosphate	PEG-7 glyceryl cocoate
	Oleth-3 phosphate	PEG-7 hydrogenated castor oil
	Oleth-5 phosphate	PEG-7 oleate
	Oleth-10 phosphate	PEG-7.5 tallowamine
	Oleth-20 phosphate	PEG-8
45	Palm acid	PEG-8 beeswax, P. castor oil
	Palmitamidopropyl dimethylamine	PEG-8 C12-14 ether
	Palmitic acid	PEG-8 dilaurate, P. dioleate
	PEG-2 cocamine, P. distearate	PEG-8 distearate
	PEG-2 hydrogenated tallow amine	PEG-8 glyceryl laurate
50	PEG-2 laurate, P. laurate SE	PEG-8 laurate, P. oleate
	PEG-2 oleamine, P. oleate	PEG-8, P. tallate
	PEG-2 soyamine, P. stearamine	PEG-9 castor oil
	PEG-2 stearate, P. stearate SE	PEG-9 diisostearate
		PEG-9 dioleate, P. distearate

	PEG-9 laurate, P. oleate	PEG-23 oleate, P. stearate
	PEG-9 stearate	PEG-24 hydrogenated lanolin
	PEG-10 castor oil, P. cocamine	PEG-25 castor oil
5	PEG-10 coconut oil esters	PEG-25 phytosterol
	PEG-10 C12-18 alcohols	PEG-25 propylene glycol stearate
	PEG-10 dioleate	PEG-25 soy stearyl, P. stearate
	PEG-10 glyceryl isostearate	PEG-29 castor oil
	PEG-10 hydrogenated castor oil	PEG-30 castor oil
10	PEG-10 hydrogenated castor oil triisostearate	PEG-30 dipolyhydroxystearate
	PEG-10 lanolate	PEG-30 glyceryl cocoate
	PEG-10 polyglyceryl-2 laurate	PEG-30 glyceryl isostearate
	PEG-10 sorbitan laurate	PEG-30 glyceryl laurate
	PEG-10 soy sterol, P. stearamine	PEG-30 glyceryl oleate
	PEG-10 stearate	PEG-30 glyceryl stearate
15	PEG-11 babassu glycerides	PEG-30 hydrogenated castor oil
	PEG-11 castor oil	PEG-30 lanolin
	PEG-12 dilaurate, P. dioleate	PEG-30 sorbitan tetraoleate
	PEG-12 distearate	PEG-32 dilaurate, P. dioleate
	PEG-12 glyceryl dioleate	PEG-32 distearate, P. laurate
20	PEG-12 laurate, P. oleate	PEG-32 oleate, P. stearate
	PEG-12 stearate, P. tallate	PEG-33 castor oil
	PEG-14 avocado glycerides	PEG-35 castor oil, P. stearate
	PEG-15 castor oil	PEG-40 castor oil
	PEG-15 cocamine	PEG-40 glyceryl isostearate
25	PEG-15 glyceryl isostearate	PEG-40 glyceryl laurate
	PEG-15 glyceryl laurate	PEG-40 glyceryl triisostearate
	PEG-15 glyceryl ricinoleate	PEG-40 hydrogenated castor oil
	PEG-15 oleamine, P. oleate	PEG-40 hydrogenated castor oil PCA isostearate
	PEG-15, P. stearamine	PEG-40 sorbitan diisostearate
30	PEG-15 tallow amine	PEG-40 sorbitan lanolate
	PEG-15 tallow polyamine	PEG-40 sorbitan tetraoleate
	PEG-16	PEG-40 stearate
	PEG-16 hydrogenated castor oil	PEG-40/dodecyl glycol copolymer
	PEG-16 soy sterol	PEG-42 babassu glycerides
35	PEG-18 stearate	PEG-44 sorbitan laurate
	PEG-20 almond glycerides	PEG-45 palm kernel glycerides
	PEG-20 castor oil, P. dilaurate	PEG-45 safflower glycerides
	PEG-20 dioleate, P. distearate	PEG-50 lanolin, P. stearamine
	PEG-20 glyceryl laurate	PEG-50 stearate
40	PEG-20 glyceryl oleate	PEG-60 almond glycerides
	PEG-20 glyceryl stearate	PEG-60 castor oil
	PEG-20 glyceryl triisostearate	PEG-60 corn glycerides
	PEG-20 glyceryl tristearate	PEG-60 glyceryl triisostearate
	PEG-20 hydrogenated castor oil	PEG-60 hydrogenated castor oil
45	PEG-20 hydrogenated lanolin	PEG-60 hydrogenated castor oil isostearate
	PEG-20 lanolin, P. laurate	PEG-60 hydrogenated castor oil triisostearate
	PEG-20 oleate	PEG-60 shea butteer glycerides
	PEG-20 methyl glucose sesquisteate	PEG-60 sorbitan tetraoleate
	PEG-20 sorbitan beeswax	PEG-70 mango glycerides
50	PEG-20 sorbitan isostearate	PEG-75
	PEG-20 sorbitan triisostearate	PEG-75 castor oil, P. dilaurate
	PEG-20 sorbitan trioleate	PEG-75 dioleate, P. distearate
	PEG-20 stearate, P. tallow amine	PEG-75 lanolin, P. laurate

	PEG-75 oleate	Polyglyceryl-10 trioleate
	PEG-75 shea butter glycerides	Polyoxyethylene polyoxypropylene glycol
	PEG-75 shorea butter glycerides	Polyquaternium-5, -31
	PEG-75 stearate	Polysorbate 20, 21, 40, 60, 61
5	PEG-80 sorbitan laurate	Polysorbate 65, 80, 81, 85
	PEG-90 stearate	Potassium alginate, P. cetyl phosphate
	PEG-100 castor oil	Potassium laurate, P. myristate
	PEG-100 hydrogenated castor oil	Potassium tallowate
	PEG-100 lanolin, P. stearate	PPG-1-PEG-9 lauryl glycol ether
10	PEG-120 distearate	PPG-2-cetareth-9
	PEG-150 dilaurate, P. dioleate	PPG-3 isosteareth-9
	PEG-150 distearate, P. lanolin	PPG-3 PEG-6 oleyl ether
	PEG-150 laurate, P. oleate	PPG-5-buteth-7
	PEG-150 stearate	PPG-5-ceteth-20
15	PEG-200 castor oil	PPG-5-ceteth-10 phosphate
	PEG-200 glyceryl stearate	PPG-8 oleate
	PEG-200 hydrogenated castor oil	PPG-10 cetyl ether phosphate
	PEG-200 laurate, P. oleate	PPG-12-PEG-50 lanolin
	PEG-400 laurate	PPG-15 stearyl ether
20	Phosphate esters	PPG-24-buteth-27
	Phosphated amine oxides	PPG-25 laureth-25
	Phospholipids	PPG-26-buteth-26
	Poloxamer 101, 105, 122, 123, 124	PPG-26 oleate
	Poloxamer 181, 182, 184, 185, 235, 237	PPG-36 oleate
25	Poloxamer 238, 334, 338, 407	Propylene glycol alginate, P.g. dioleate
	Polyglyceryl-2 oleate	Propylene glycol hydroxystearate
	Polyglyceryl-2 polyhydroxystearate	Propylene glycol laurate, P.g. ricinoleate
	Polyglyceryl-2 sesquiisostearate	Propylene glycol ricinoleate SE
	Polyglyceryl-2 stearate	Propylene glycol stearate
30	Polyglyceryl-2-PEG-4-distearate	Propylene glycol stearate, SE
	Polyglyceryl-2-PEG-4-stearate	Quaternium-33
	Polyglyceryl-3 diisostearate, P. dioleate	Rapeseedamidopropyl ethyldimonium ethosulfate
	Polyglyceryl-3 distearate	Rice (Oryza sativa) bran wax
	Polyglyceryl-3 methylglucose distearate	Ricinoleamide DEA
35	Polyglyceryl-3 oleate, P. polyricinoleate	Ricinoleic acid
	Polyglyceryl-3 stearate	Saponins
	Polyglyceryl-4 oleate, P. stearate	Selenium protein complex
	Polyglyceryl-6 dioleate, P. distearate	Silicone quaternium-5, -6
	Polyglyceryl-6 laurate, P. myristate	Sodium acrylates vinyl isodecanoate
40	Polyglyceryl-6 oleate, P. polyricinoleate	crosspolymer
	Polyglyceryl-6 stearate	Sodium caproyl lactylate
	Polyglyceryl-8 oleate	Sodium carbomer
	Polyglyceryl-10 decaoleate	Sodium cetyl sulfate
	Polyglyceryl-10 diisostearate	Sodium C12-15 pareth-15 sulfonate
45	Polyglyceryl-10 dioleate, P. dipalmitate	Sodium isostearyl lactylate
	Polyglyceryl-10 distearate, P. isostearate	Sodium laureth-17 carboxylate
	Polyglyceryl-10 laurate, P. linoleate	Sodium lauroyl lactylate
	Polyglyceryl-10 mixed fatty acids	Sodium lauryl sulfate
	Polyglyceryl-10 myristate	Sodium nonoxynol-6 phosphate
50	Polyglyceryl-10 oleate	Sodium octyl sulfate
	Polyglyceryl-10 pentastearate	Sodium oleate
	Polyglyceryl-10 stearate	Sodium oleyl sulfate
	Polyglyceryl-10 tetraoleate	Sodium phosphate

- Sodium stearoyl lactylate  
 Sorbeth-20  
 Sorbitán isostearate, S. laurate  
 Sorbitan oleate, S. palmitate  
 5 Sorbitan sesquiisostearate  
 Sorbitan sesquioleate, S. sesquistearate  
 Sorbitan stearate, S. triisostearate  
 Sorbitan trioleate, S. tristearate  
 10 Soyamidopropyl dimethylamine  
 Soyamine  
 Stearamide DEA  
 Stearamide DIBA-stearate  
 Stearamidoethyl diethylamine  
 Stearamidopropyl dimethylamine, lactate  
 15 Stearamidopropyl PG-dimonium chloride  
 phosphate  
 Stearamine  
 Stearamine oxide  
 Steareth-2, -4, -6, -7, -10, -11, -13  
 20 Steareth-2 phosphate  
 Steareth-15, -20, -21, -30, -100  
 Stearic acid  
 Sucrose cocoate, S. distearate  
 Sucrose stearate  
 25 Sythetic beeswax  
 Tallow glyceride, acetylated hydrogenated  
 Tallowamide DEA  
 Tallowamidopropyl dimethylamine  
 Talloweth-6  
 30 Tetrasodium dicarboxyethyl stearyl  
 sulfosuccinamide  
 TEA-acrylates/acrylonitrogens copolymer  
 Tissue extract  
 Triceteareth-4 phosphate  
 35 Trideceth-3, -5, -6, -7, -8  
 Trideceth-9, -10, -12, -15  
 Tridecyl ethoxylate  
 Triethanolamine  
 Trilaureth-4 phosphate  
 40 Triolein  
 Trisodium HEDTA  
 Tristearin  
  
**Enzyme**  
 45 Fermented vegetable  
 Ganoderma lucidum oil  
 Lipase  
 Papain  
 Soy (Glycine soja) protein  
 50 Superoxide dismutase  
  
**Essentail oil**  
 Aesculus chinensis extract

Artemisia apiacea extract  
 Brassica rapa-depressa extract  
 Caraway (Carum carvi) oil  
 Cardamon (Elettaria cardamomum) oil  
 Clove (Eugenia caryophyllus) oil  
 Eclipta alba extract  
 Eucalyptus globulus oil  
 Euphatorium fortunei extract  
 Euterpe precatoria extract  
 Hierochloe odorata extract  
 Kadsura heteliloca extract  
 Ligustrum lucidum extract  
 Lysimachia foenum-graecum extract  
 Melaleuca bracteata extract  
 Melaleuca hypercifolia extract  
 Melaleuca symphyocarp extract  
 Melaleuca uncinata extract  
 Melaleuca wilsonii extract  
 Nasturtium sinensis extract  
 Nelumbium speciosum extract  
 Paulownia imperialis extract  
 Rosemary (Rosmarinus officinalis) oil  
 Selinum spp. extract  
 Trichomonas japonica extract  
 Withania somniferum extract  
 Yuzu oil  
 Ziziphus jujuba extract

**Exfoliant**

Apricot (Prunus armeniaca) kernel powder  
 Glycolic acid  
 Jojoba (Buxus chinensis) seed powder  
 Lactic acid Papain  
 PEG 11-Avocado Glycerides  
 Willow (Salix alba) bark extract

**Fiber**

Corn (Zea mays) cob powder  
 Nylon-66  
 Oat (Avena sativa) bran, meal  
 Rayon

**Film former**

Acetylated lanolin  
 Acrylates/hydroxyesters acrylates copolymer  
 Acrylate/octylarylamide copolymer  
 Acrylate copolymer alkylated  
 polyvinylpyrrolidone  
 Ammonium acrylates/acrylonitrogens copolymer  
 Betaglukan  
 Bladderwrack (Fucus vesiculosus) extract  
 Carboxymethylchitosan  
 N,O-Carboxymethylchitosonium

	Chitosan lactate	Soube wheat protein
	Collagen	TEA-acrylates/acrylonitrogens copolymer
	Collagen phthalate	Tosylamide/epoxy resin
	Colloidal oatmeal	Tricontanyl PVP
5	Desamido collagen	Triethonium hydrolyzed collagen ethosulfate
	Diisostearoyl trimethylolpropane siloxy silicate	Wheat peptide
	DMHF	
	Ethyl ester of hydrolyzed silk	<b>Fixative</b>
	Ethylcellulose	Acrylates copolymer
10	Gellan gum	Adipic acid/dimethylaminohydroxypropyl diethylene triamine copolymer
	Glycerin/diethylene glycol/adipate crosspolymer	AMP-acrylates copolymer
	High beta-glucan barley flour	Hydrolyzed zein
	Hydrolyzed collagen	Methacrylol ethyl betaine/acrylates copolymer
	Hydrolyzed keratin	Methyl rosinat
15	Hydrolyzed oat protein	Polyquaternium-4, -10, -29
	Hydrolyzed pea protein	PPG-20 methyl glucose ether
	Hydrolyzed reticulon	Sodium polystyrene sulfonate
	Hydrolyzed RNA	
	Hydrolyzed silk	<b>Flavor (aroma)</b>
20	Hydrolyzed soy protein	Benzaldehyde
	Hydrolyzed wheat protein	Caraway (Carum carvi) oil
	Hydrolyzed wheat protein/dimethicone copolyol phosphate copolymer	Cardamon (Elettaria cardamomum) oil
	Hydrolyzed wheat protein/PVP copolymer	Cinnamon (Cinnamomum casia) oil
25	Hydroxypropylcellulose	Clove (Eugenia caryophyllus) oil
	Hydroxypropyltrimonium gelatin	Ethyl vanillin
	Jjoba (Buxus chinensis) oil	Eucalyptus globulus oil
	Lactoglobulin	Flavor (aroma)
	Myristoyl hydrolyzed collagen	Glutamic acid
30	Nitrocellulose	Glycyrrhetic acid
	Oat (Avena sativa) extract, protein	Glycyrrhizic acid
	Polyethylene, ionomer	Glycyrrhizin, ammoniated
	Polyquaternium-6, -7, -11, -22, -39	Methyl salicylate
	Polyvinyl acetate, P. alcohol	Orange (Citrus aurantium dulcis) oil
35		Peppermint (Mentha piperita) oil
	PVM/MA decadiene crosspolymer	Rosemary (Rosmarinus officinalis) oil
	PVP/Dimethiconylacrylate/polycarbamyl/polyglycol ester	Sodium glycyrrhizinate
	PVP/dimethylaminoethylmethacrylate copolymer	Thymol Vanillin
40	PVP/dimethylaminoethylmethacrylate/polycarbamyl/polyglycol ester	<b>Foam booster</b>
	PVP/eicosene copolymer	Alkyldimethylamine oxide
	PVP/hexadecene copolymer	Babassuamidopropyl betaine
45	PVP/hydrolyzed wheat protein copolymer	Babassuamidopropylamine oxide
	Rice peptide	Caprylyl pyrrolione
	Sericin	Carrageenan (Chondrus crispus)
	Shea butter (Butyrospermum parkii)	Cocamide DEA, C. MIPA
	Shellac	Cocamidopropyl betaine
50	Sodium C12-15 pareth-7 sulfonate	Cocamidopropyl dimethylamine lactate
	Sodium hyaluronate	Cocamidopropyl hydroxysultaine
	Soube collagen	Coco-betaine
	Soube keratin	Coco/oleamidopropyl betaine
		Cocoyl amido hydroxy sulfo betaine
		Cocoyl monoethanolamide ethoxylate

	DEA-hydrolyzed lecithin	Myristamide DEA, M. MEA
	Dimethyl lauramine	Oleamide MEA
	Disodium cocamido MEA-sulfosuccinate	Palmitamide MEA
	Disodium cocoamphodiacetate	PEG-3 lauramide
5	Disodium lauramido MEA-sulfosuccinate	PEG-4 oleamide
	Disodium laureth sulfosuccinate	Ricinoleamide MEA
	Lauramide MIPA	Sesamide DEA
	Lauramidopropyl betaine	Wheat germamide DEA
	Lauryl betaine	
10	Myristamidopropyl dimethylamine dimethicone copolyol phosphate	<u>Foamer</u>
	Myristamine oxide	Ammonium laureth sulfate
	Octyldodecyl benzoate	Ammonium laureth-5 sulfate
	Oleamide DEA, O. MIPA	Ammonium laureth-12 sulfate
15	Oleyl betain	Ammonium lauryl sulfate, A.I. sulfosuccinate
	Palm kernelamide DEA	Ammonium myreth sulfate
	PEG-3 lauramine oxide	Ammonium nonoxynol 4 sulfate
	PPG-15 stearyl ether benzoate	Capryl caprylylglucoside
	PEG-7000	Cetyl betaine
20	Sodium cocoamphoacetate	Cocamide
	Sodium cocoyl isethionate	Cocamidopropyl dimethylamine
	Sodium laureth sulfate	Cocamidopropyl dimethylamine lactate
	Sodium lauroyl wheat amino acids	DEA-laureth sulfate
	Sodium octoxynol-2 ethane sulfonate	DEA lauryl sulfate
25	Soyamidopropyl betaine	Decyl glucoside
	Tallowamide MEA	Disodium caproamphodiacetate
	<u>Foam stabilizer</u>	Disodium caproamphodipropionate
	Babassuamidopropylamine oxide	Disodium capryloamphodiacetate
30	Behenamine oxide	Disodium cocoamphodipropionate
	Caprylyl pyrrolidone	Disodium lauroamphodiacetate
	Cetamine oxide	Disodium lauroamphodipropionate
	Cocamide DEA, C. MEA, C. MIPA	Disodium lauryl sulfosuccinate
	Cocamidopropyl betaine	Disodium oleamido MEA-sulfosuccinate
35	Cocamidopropyl hydroxysultaine	Disodium oleamido MIPA-sulfosuccinate
	Cocamidopropyl lauryl ether	Disodium PEG-4 cocoamido MIPA- sulfosuccinate
	Cocamidopropylamine oxide	Isostearamidopropylamine oxide
	Cocamine oxide	Lauryl glucoside
	Dihydroxyethyl C12-15 alkoxypropylamine oxide	Methyl gluceth-20
40	Dihydroxyethyl cocamine oxide	MEA-laureth sulfate
	Dihydroxyethyl tallowamine oxide	Mixed isopropanolamines myristate
	Erucamidopropyl hydroxysultaine	MIPA-lauryl sulfate
	Hydroxypropyl methylcellulose	PEG-80 sorbitan laurate
	Isostearamide DEA	PEG lauryl ether sulfate
45	Lauramide DEA, L. MEA	Potassium cocoate, P. lauryl sulfate
	Lauramido propylamine oxide	Quillaja saponaria extract
	Lauramine oxide	Sodium caproamphoacetate
	Laureth-10	Sodium capryloamphoacetate
	Lauric-linoleic DEA	Sodium capryloamphohydroxypropylsulfonate
50	Lauroyl-linoleoyl diethanolamide	Sodium cocoamphoacetate
	Lauroyl-myristoyl diethanolamide	Sodium cocoamphopropionate
	Lauryl pyrrolidone	Sodium C12-15 pareth-25 sulfate
	Linoleamide MEA	Sodium C12-15 pareth-3 sulfonate
		Sodium C12-15 pareth-15 sulfonate

	Sodium C14-16 olefin sulfonate	Ziziphus jujuba extract
	Sodium deceth sulfate	
	Sodium laureth-2 sulfate	<u>Gellant</u>
	Sodium laureth-3 sulfate	Acrylic acid/acrylonitrogens copolymer
5	Sodium laureth-7 sulfate	Agar
	Sodium lauriminodipropionate	Algin
	Sodium laurylether sulfosuccinate	Aluminum distearate, A. tristearate
	Sodium lauryl sulfate, S.I. sulfoacetate	Ammonium acrylates/acrylonitrogens copolymer
	Sodium lauryl sulfosuccinate	Behenic acid
10	Sodium magnesium laureth sulfate	Calcium alginate
	Sodium myreth sulfate, S. myristyl sulfate	Carbomer
	Sodium trideceth sulfate	Carboxymethylchitosan
	Sodium tridecyl sulfate	N,O-Carboxymethylchitosonium
	TEA-dodecylbenzenesulfonate	Carrageenan (Chondrus crispus)
15	TEA-laureth sulfate	Ceresin
	TEA-lauroyl collagen amino acids	Cetearyl candelillate
	TEA-lauroyl keratin amino acids	Dibenzylidene sorbitol
	TEA-lauryl sulfate	Ethylene/acrylic acid copolymer
	TEA-palm kernel sarcosinate	Ethylene/VA copolymer
20	Wheat germamidopropyl betain	Gellan gum
	Yucca vera extract	Hexanediol behenyl beeswax
	<u>Fragrance</u>	Hydrogenated jojoba oil
	Chamaecyparis obtusa oil	Hydrogenated jojoba wax
25	Orange (Citrus aurantium dulcis) oil	Hydroxystearic acid
	Peppermint (Mentha piperita) oil	Jojoba wax
	Phenethyl alcohol	Laneth-5, -15
		Montmorillonite
		Myreth-3-octanoate
30	<u>Fragrance solvent</u>	Octacosanyl stearate
	Benzyl benzoate	Oleth-3 phosphate
	Diethyl phthalate	Oleth-10 phosphate
	Triacetin	Poloxamer 105, 123, 124, 185, 235
	Triethyl citrate	Poloxamer 237, 238, 338, 407
35	<u>Fungicide</u>	Polyethylene
	Astrocaryum murumuru extract	Polyethylene, oxidized
	Azadirachta indica extract	Polyquaternium-31
	Captan	Potassium alginate, P. chloride
	Diiodomethyltolylsulfone	Sodium nonoxynol-6 phosphate
40	Ficus racemosa extract	Sodium tallowate
	Hexetidine	Synthetic beeswax
	Ligusticum jeholense extract	TEA-acrylates/acrylonitrogens copolymer
	Mauritia flexosa extract	Tribehenin
	Melaleuca symphyocarp extract	
45	Melia australasica extract	<u>Glosser</u>
	Melia azadirachta extract	C18-36 acid glycol ester
	Mushroom (Cordyceps sabolifera) extract	Diphenyl dimethicone
	Mushroom (Coriolus versicolor) extract	Methyl gluceth-10
	Sodium undecylenate	Octyldodecyl lactate
50	Tea tree (Melaleuca alternifolia) oil	Phenyl methicone, P. trimethicone
	Thiabendazole	Polyglyceryl-2 dioleate
	Undecylenamide MEA	Polyisobutene
	Zinc undecylenate	Polyisobutene/isohexapentacontahectane
		Polyisobutene/isooctaheptacontane



	Polymethacrylamidopropyltrimonium chloride	Dihydroxyethyl tallowamine oleate
	PPG-10 methyl glucose ether	Dimethicone
	PPG-36 oleate	Dimethicone copolyol acetate, D.c. almondate
5	Tea ( <i>Camellia sinensis</i> ) oil	Dimethicone copolyol amine
	Tribehenin	Dimethicone copolyol bishydroxyethylamine
	<u>Hair care</u>	Dimethicon copolyol isostearate, D.c. laurate
	Gentiana scabra extract	Dimethicone copolyol olivate
	Maidenhair fern extract	Dimethicone hydroxypropyl trimonium chloride
10	Nicotinamide	Dimethyl lauramine dimer dilinoleate
	Nicotinic acid	Dioleylamidoethyl hydroxyethylmonium
	Paeonia lactiflorum extract	methosulfate
	Watercress ( <i>Nasturtium officinale</i> ) extract	Dipalmitoylethyl hydroxyethylmonium
15	<u>Hair conditioner</u>	methosulfate
	Amino bispropyl dimethicone	Diphenyl dimethicone
	Amodimethicone	Ditalowdimonium chloride
	AMPD-isostearoyl hydrolyzed collagen	N-Dodecyl-N,N-dimethyl-N-(dodecyl acetate)
	Aqua Ichthammol	ammonium chloride
20	Babassu ( <i>Orbignya oleifera</i> ) oil	Entada phaseoloides extract
	Babassuamidopropalkonium chloride	Ethyl ester of hydrolyzed animal protein
	Behenamidopropyl dimethylamine	Gelatin
	Behenamidopropyl hydroxyethyl dimonium	Ginseng hydroxypropyltrimonium chloride
	chloride	butylene glycol
25	Behentrimonium chloride	Hematin
	Biotin	Honey (Mel)
	Bishydroxyethyl biscetyl malonamide	Hydrolyzed collagen
	Borageamidopropyl phosphatidyl PG-dimonium	Hydrolyzed hair keratin
	chloride	Hydrolyzed vegetable protein
30	Brazil nut ( <i>Bertholletia excelsa</i> ) oil	Hydrolyzed wheat protein/dimethicone copolyol
	Cetearyl trimonium methosulphate	acetyl copolymer
	Cetrimonium bromide, C. chloride	Hydrolyzed wheat protein hydroxypropyl
	Cetyl pyridinium chloride	polysiloxane
	Chia ( <i>Salvia hispanica</i> ) oil	Hydroxyethyl cetyldimonium phosphate
35	Chrysanthemum morifolium extract	Hydroxypropyl trimonium hydrolyzed collagen
	Cinchona succirubra extract	Hydroxypropyl trimonium hydrolyzed wheat
	Cocamidopropyl dimethylamine propionate	protein polysiloxane copolymer
	Coccinea indica extract	Hyssop ( <i>Hyssopus officinalis</i> ) extract
	Cocodimonium hydroxypropyl hydrolyzed	Inga edulis extract
40	collagen	Isostearamidopropylamine oxide
	Cocodimonium hydroxypropyl hydrolyzed	Isostearoyl hydrolyzed collagen
	keratin	Keratin amino acids
	Cocodimonium hydroxypropyl silk amino acids	Kiwi ( <i>Actinidia chinensis</i> ) fruit extract
	Cocodimonium hydroxypropyl hydrolyzed wheat	Kola ( <i>Cola acuminata</i> ) extract
45	protein	Laminaria japonica extract
	Cocodimonium hydroxypropyloxyethyl cellulose	Laurtrimonium chloride
	Cocotrimonium chloride	Lauryl hydroxypropyl trimonium polysiloxane
	Collagen amino acids	copolymer
	Cyclomethicone	Lauryldimethylamine isostearate
50	L-cysteine HCL	Lauryldimonium hydroxypropyl hydrolyzed
	Dibehenylmonium methosulfate	collagen
	Dicetyldimonium chloride	Lauryldimonium hydroxypropyl hydrolyzed
	Dicocodimonium chloride	wheat protein
		Linoleamidopropyl dimethylamine dimer
		dilinoleate

	Linoleamidopropyldimethylamine	Tallowbenzyldimethylammonium chloride, hydrogenated
	Lysimachia foenum-graecum extract	
	Melaleuca hypericifolia extract	Tallowtrimonium chloride
	Ocimum santum extract	Tea (Camellia sinensis) oil
5	Olealkonium chloride	TEA-cocoyl hydrolyzed soy protein
	Oleyl dimethylamidopropyl ethonium ethosulfate	Thenoyl methionate
	Palmitamidodecanediol	Trimethylsilylamodimethicone
	Panthenyl ethyl ether	Wheat amino acids
	Paulownia imperialis extract	
10	Peach (Prunus perisca) leaf extract	
	PEG-2 cocomonium chloride	
	PEG-120 jojoba acid/alcohol	
	PG-hydroxycellulose lauryldimonium chloride	
	PG-hydroxyethylcellulose cocodimonium chloride	
15	PG-hydroxyethylcellulose lauryldimonium chloride	
	PG-hydroxyethylcellulose stearyldimonium chloride	
20	Phenyl trimethicone	
	Phospholipids	
	Phytantriol	
	Polyoxyethylene polyoxypropylene glycol	
	Polypropylene glycol	
25	Polyquaternium-4, -6, -7, -10	
	Polyquaternium-22, -28, -39	
	PPG-5-ceteth-10 phosphate	
	Propyltrimonium hydrolyzed collagen	
	propyltrimonium hydrolyzed soy protein	
30	Quaternium-18, -75, -81, -82	
	Quaternium-79 hydrolyzed keratin	
	Quaternium-79 hydrolyzed silk	
	Sambucus nigra extract, oil	
	Sesamidopropalkonium chloride	
35	Silicone quaternium-1, -8	
	Sodium cocoamphoacetate	
	Sodium cocoyl hydrolyzed collagen	
	Sodium polystyrene sulfonate	
	N-Soya-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	
40	Steapyrium chloride	
	Stearalkonium chloride	
	Stearamidopropyl dimethylamine	
	Steardimonium hydroxypropyl hydrolyzed wheat protein	
45	STeartrimonium chloride	
	STeartrimonium hydroxyethyl hydrolyzed collagen	
	N-Stearyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	
50	Stenocalyx micalii extract	
	Sulfur	

**Hair set resin polymer**

- Acrylates/acrylamide copolymer
- Acrylates/PVP copolymer
- Acrylates/hydroxyesters acrylates copolymer
- 5 Acrylates/octylarylamide copolymer
- AMP-acrylates copolymer
- Butylester of PVM-MA copolymer
- Carboxylated vinylacetate terpolymer
- Diglycol/CHDM/isophthalates/SIP copolymer
- 10 Eclipta alba extract
- Ethyl ester of PVM/MA copolymer
- Hydroxypropyl chitosan
- Isopropyl ester of PVM/MA copolymer
- Octylacrylamide/acrylates/butylaminoethyl
- 15 methacrylate copolymer
- Polymethacrylamidopropyltrimonium chloride
- Polypropylene glycol oligosuccinate
- PVP
- PVP/dimethylaminoethylmethacrylate copolymer
- 20 PVP/Polycarbamyl polyglycol ester
- PVP/VA copolymer
- PVP/VA vinyl propionate copolymer
- Sodium polyacrylate
- VA/butyl maleate/isobornyl acrylate copolymer
- 25 VA/crotonates/vinyl neodecanoate copolymer
- VA/crotonates/vinyl propionate copolymer
- VA/crotonates copolymer
- Vinyl caprolactam/PVP/
- dimethylaminoethylmethacrylate copolymer
- 30

**Hair sheen**

Maidenhair fern extract  
Tetrabutoxypropyl methicone

**Hair waving**

- Ammonium thioglycolate, A. thiolactate
- Argania spinosa oil
- L-cysteine HCL
- Cystine
- 40 Diammonium dithiodiglycolate
- Dilauryl thiodipropionate
- Ethanolamine sulfite, E. thioglycolate
- Ethanolamine thiolactate
- Glyceryl thioglycolate
- 45 Hydroxymethyl dioxoazabicyclooctane
- Jojoba esters
- Monoethanolamine thiolactate
- Shea butter, ethoxylated
- Sodium thioglycolate
- 50 Thioglycerin
- Thioglycolic acid
- Thiolactic acid

**Humectant**

Acetamide MEA  
Acetyl monoethanolamine  
6-(N-Acetylamino)-4-oxyhexyltrimonium  
chloride  
Adenosine phosphate  
Ammonium lactate  
Atelocollagen  
Calcium pantothenate  
Calcium stearoyl lactylate  
Carboxymethyl chitin  
Carboxymethyl chitosan succinamide  
Chitosan PCA  
Cholesteryl hydroxystearate  
Collagen amino-polysiloxane hydrolyzate  
Colloidal oatmeal  
Copper PCA methylsilanol  
Dimethicone copolyol laurate  
Dipotassium glycyrrhizinate  
Ethyl ester of hydrolyzed silk  
Fatty quaternary amine chloride complex  
Glucos glutamate  
Glycereth-4,5-lactate  
Glycereth-7, -12, -26  
Glycerin  
Honey extract  
Hydrogenated passion fruit oil  
Hydrolyzed casein  
Hydrolyzed fibronectin  
Hydrolyzed glycosaminoglycans  
Hydrolyzed oat protein  
Hydrolyzed silk  
Hydrolyzed soy protein  
Hydroxypropyl chitosan  
Hydroxypropyltrimonium hydrolyzed casein  
Hydroxypropyltrimonium hydrolyzed silk  
Hydroxypropyltrimonium hydrolyzed soy protein  
Hydroxypropyltrimonium hydrolyzed wheat  
protein  
Keratin amino acids  
Lactamide DGA, MEA  
Lactamidopropyl trimonium chloride  
Lactic acid  
Lactose  
Lauroyl lysine  
Maltitol  
Mannitol  
Methyl gluceth-10, -20  
Natto gum  
Oat (Avena sativa) extract, protein  
Panthenol  
Panthenyl ethyl ether  
PCA

- PEG-4  
Polyamino sugar condensate  
Potassium lactate  
Propylene glycol  
5 Propyltrimonium hydrolyzed collagen  
propyltrimonium hydrolyzed soy protein  
Propyltrimonium hydrolyzed wheat protein  
Quaternium-22  
Rice (*Oryza sativa*) germ oil  
10 Sea Salts (*Maris sal*)  
Shea butter (*Butyrospermum parkii*)  
Silk powder  
Sodium behenoyl lactylate  
Sodium caproyl lactylate  
15 Sodium cocoyl lactylate  
Sodium hyaluronate  
Sodium isostearoyl lactylate  
Sodium lactate, S. lauroyl lactylate, S. PCA  
Sodium polyglutamate  
20 Sodium stearoyl lactylate  
Sorbitan laurate  
Sorbitan sesquiisostearate  
Sorbitol  
Sphingolipids  
25 TEA-PCA  
Urea

**Hydrotrope**

- Ammonium cumenesulfonate  
30 Ammonium xylenesulfonate  
Cetamine oxide  
Cocamidopropylamine oxide  
Lauramine oxide  
Potassium toluenesulfonate  
35 PPG-2-isodeceth-4, -6, -9, -12  
Sodium cumene sulfonate  
Sodium laureth-13-carboxylate  
Sodium toluene sulfonate  
Sodium xylene sulfonate  
40 Trideceth-19-carboxylic acid

**Intermediate**

- Caprylic acid  
Deceth-3  
45 Diethyl succinate  
Dimethylaminopropylamine  
DM hydantoin  
Dodecylbenzene sulfonic acid  
Ethylene dichloride  
50 4-Fluoro 3-nitro aniline  
Lauramine  
Methyl benzoate, M. cocoate  
Methyl isostearate, M. laurate

- Methyl myristate, M. palmitate  
Oleic acid  
Ricinoleic acid  
Tall oil acid  
Tallow acid

**Lathering agent**

- Ammonium cocoyl sarcosinate  
Ammonium C12-15 alkyl sulfate  
Ammonium lauroyl sarcosinate  
Cocamide MEA ethoxylate  
Cocamidopropyl dimethylaminohydroxypropyl  
hydrolyzed collagen  
Lauroyl sarcosine  
Myristoyl sarcosine  
Sodium cocoyl sarcosinate  
Sodium lauroyl sarcosinate  
Sodium methyl cocoyl taurate  
Sodium myristoyl sarcosinate  
TEA-cocoyl sarcosinate  
TEA-lauroyl sarcosinate

**Lubricant**

- Aluminum salt octenyl succinate  
Amodimethicone  
Boron nitride  
Calcium aluminum borosilicate  
Calcium stearate  
Caprylic/capric triglyceride  
Coceth-7 carboxylic acid  
Coconut (*Cocos nucifera*) oil  
Cyclomethicone  
Diisodecyl adipate  
Diisostearyl fumarate  
Dimethicone copolyol  
Glyceryl isostearate, G. oleate  
Glyceryl polymethacrylate  
Gold of Pleasure oil  
Hyaluronic acid  
Hydrogenated coconut oil  
Hydrogenated cottonseed oil  
Hydrogenated palm oil  
Hydrogenated soybean/cottonseed oil  
Hydrogenated soybean oil  
Hydrogenated vegetable oil  
Hydrolyzed oat flour  
Hydroxypropyl guar  
Isodecyl stearate  
Isopropyl lanolate  
Isostearyl diglyceryl succinate  
Jojoba esters  
Lanolin oil  
Laureth-3 phosphate  
Magnesium myristate, M. stearate

- Mango (*Mangifera indica*) oil  
 Mineral oil (*Paraffinum liquidum*)  
 Mink oil  
 Monostearyl citrate  
 5 Neatsfoot oil  
 Oleostearine  
 Partially hydrogenated soybean oil  
 PEG-2 stearate  
 PEG-4 dilaurate  
 10 PEG-5M  
 PEG-9M  
 PEG-23M  
 PEG-27 lanolin  
 PEG-30 lanolin  
 15 PEG-40 lanolin, P. stearate  
 PEG-45M  
 PEG-90M  
 PEG-160M  
 PEG/PPG-17/6 copolymer  
 20 Pentaerythrityl tetrapelargonate  
 Petrolatum  
 Phenethyl dimethicone  
 Phenyl methicone  
 Polyacrylamidomethylpropane sulfonic acid  
 25 Polybutane  
 Polydimethicone copolyol  
 Polyglycerol ester of mixed vegetable fatty acids  
 Polymethylsilsequioxane  
 Potassium laurate, P. myristate  
 30 Potassium tallowate  
 PPG-2 myristyl ether propionate  
 PPG-3 myristyl ether  
 PPG-9-buteth-12  
 PPG-11 stearyl ether  
 35 PPG-12-buteth-16  
 PPG-12-PEG-50 lanolin  
 PPG-14 butyl ether  
 PPG-20 cetyl ether  
 PPG-20-buteth-30  
 40 PPG-24-buteth-27  
 PPG-28-buteth-35  
 PPG-36 oleate  
 PPG-40 butyl ether  
 Quaternium-79 hydrolyzed keratin  
 45 Quaternium-79 hydrolyzed silk  
 Rice (*Oryza sativa*) starch  
 Shea butter (*Butyrospermum parkii*) extract  
 Shorea stenoptera butter  
 Silica  
 50 Stearamide MEA, S. MEA-stearate  
 Stearoyltrimethylsilane  
 Stearyl dimethicone  
 Triisostearyl citrate
- Triolein  
 Trisodium HEDTA  
 Triundecanoin  
 Zinc laurate, Z. stearate
- Miscellaneous**
- Adhesion promoter* — Glycerin/diethylene glycol/adipate crosspolymer  
*Analgesic* — Glycol salicylate  
*Anesthetic* — Benzocaine  
*Anti-elastic* — Hydrolyzed *Ulva lactuca* extract  
*Anti-itching* — Sodium shale oil sulfonate  
*Antiacid* — Magnesium hydroxide, Magnesium silicate, Simethicone  
*Antifoam* — Dimethicone silylate, Simethicone  
*Antilipasic* — *Laminaria saccharina* extract  
*Antipruritic* — Coal tar  
*Antispasmodic* — Garlic (*Allium sativum*) extract  
*Antiwrinkle* — Chinese hibiscus (*Hibiscus rosa-sinensis*) extract  
*Barrier* — Glycerin/diethylene glycol/adipate crosspolymer  
*Cell regeneration* — Glycoproteins, Hydrolyzed *Ulva lactuca* extract  
*Co-emulsifier* — Cholesteryl/behenyl/octyldodecyl lauroyl glutamate, Isododecane  
*Colloid* — Gelatin  
*Cooling agent* — Menthyl PCA, Menthone glycerin acetal  
*Detoxifier* — Clover (*Trifolium pratense*) extract  
*Dye stabilizer* — Uric acid  
*Filler* — Mica  
*Fragrance stabilizer* — 2,2',4,4'-Tetrahydroxybenzophenone  
*Free radical scavenger* — Melanin  
*IR filter* — *Corallina officinalis*  
*Lanolin substitute* — PEG-80 jojoba acid/alcohol  
*Lipolytic* — *Gelidium cartilagineum*  
*Oxidant* — Barium peroxide, Hydrogen peroxide, Urea peroxide  
*Oxygen carrier* — Perfluorodecalin  
*Peroxide stabilizer* — Phenacetin, Sodium stannate  
*Scalp stimulant* — Birch (*Betula alba*) leaf extract  
*Sebostatic* — *Laminaria saccharina* extract  
*Shine enhancer* — Hydrolyzed wheat protein hydroxypropyl polysiloxane  
*Skin barrier lipid* — Ceramide 3, N(27-Stearoyloxy-heptacosanoyl) phytosphingosine  
*Skin clarifier* — Oat (*Avena sativa*) bran extract  
*Skin purifier* — Birch (*Betula alba*) leaf extract

- Substantivity* — Dimethicone copolyol  
bishydroxyethylamine, Dimethicone  
hydroxypropyl trimonium chloride,  
Trimethylsilylamodimethicone
- 5 *Sunless tanning* — Acetyl tyrosine, Eclipta alba  
extract in white emulsion
- Tonic* — Kiwi (Actinidia chinensis) fruit extract,  
Matricaria (Chamomilla recutita) extract,  
Orange (Citrus aurantium dulcis) peel extract
- 10 *Viscosity stabilizer* — Diisodecyl adipate
- Spreading agent* — Stearyl heptanoate
- Wound healing* — Comfrey (Symphytum  
officinale) leaf extract
- 15 *Waterproofing agent* — PVP/eicosene copolymer,  
PVP/hexadecene copolymer, Tricontanyl  
PVP
- Moisture barrier**
- 20 Acrylates/octylarylamide copolymer  
Betaglukan  
C16-18 alkyl methicone  
Cholesterol  
Glycolipids  
Isoeicosane
- 25 Isohexadecane  
Lanosterol  
Octyl pelargonate, O. stearate  
Polyisobutene  
Polyisobutene/isohexapentacontahexane
- 30 Polyisobutene/isooctahexacontane  
Silica silylate  
Trihydroxypalmitamidohydroxy propyl myristyl  
ether  
Trimethylsiloxysilicate
- 35 **Moisturizer**  
Acetamidopropyl trimonium chloride  
Adenosine triphosphate  
Aesculus chinensis extract
- 40 Algae (Ascophyllum nodosum) extract  
Algae extract  
Aloe barbadensis, A.b. extract  
Ammonium lactate  
Amniotic fluid
- 45 Apple (Pyrus malus) extract  
Apricot (Prunus armeniaca) kernel oil  
Arginine PCA  
Atelocollagen  
Artemisia apiacea extract
- 50 Astrocyrum murumuru extract  
Avocado (Persea gratissima) extract, oil  
Avocado (Persea gratissima) unsaponifiables  
Babassu (Orbignya oleifera) oil
- Bactri gasipaes extract  
Benincasa hispids extract  
Betaglukan  
Betaine  
Borage (Borago officinalis) seed oil  
Brazil nut (Bertholettia excelsa) extract, oil  
C10-30 cholesterol/lanosterol esters  
Calcium pantothenate  
Calcium protein complex  
Caprylic/capric triglyceride  
Caprylic/capric/lauric triglyceride  
Caprylic/capric/linoleic triglyceride  
Caprylic/capric/oleic triglycerides  
Cashew (Anacardium occidentale) nut oil  
Celastrus paniculata extract  
Ceramide 33 (liquid soy extract)  
Chia (Salvia hispanica) oil  
Chinese hibiscus (Hibiscus rosa-sinensis) extract  
Chitin  
Chitosan, C. PCA  
Cholesteric esters  
Cholesterol  
Cholesteryl/behenyl/octyldodecyl lauroyl  
glutamate  
Cocodimonium hydroxypropyl hydrolyzed  
collagen  
Cocodimonium hydroxypropyl hydrolyzed silk  
Cocodimonium hydroxypropyl hydrolyzed wheat  
protein  
Cocodimonium hydroxypropyl silk amino acids  
Collagen  
Collagen amino acids, C. phthalate  
Copper aspartate, C. protein complex  
Corn (Zea mays) oil  
Cottonseed (Gossypium) oil  
Crataegus cuneata extract  
Cucumber (Cucumis sativus) extract  
Desamido collagen  
Dicaprylyl maleate  
Diisocetyl dodecanedioate  
Diisostearyl adipate  
Dimethyl hyaluronate  
Dimethylsilanol hyaluronate  
Diocetyl dodecyl dimer dilinoleate  
Diocetyl dodecyl dodecanedioate  
Dipentaerythritol fatty acid ester  
Dog rose (Rosa canina) hips extract  
Dog rose (Rosa canina) seed extract  
Echitea glauca extract  
Elastin amino acids  
Embllica officinalis extract  
Ethyl minkate  
Eugenia jambolana extract

	Evening primrose ( <i>Oenothera biennis</i> ) extract, oil	Lactamide DGA, L. MEA
	Galla sinensis extract	Lactic acid
	<u>Ganoderma lucidum</u> oil	Lactobacillus/whey ferment
	Ginseng ( <i>Panax ginseng</i> ) extract	Lactococcus hydrolysate
5	Gleditsia sinensis extract	Lactoyl methylsilanol elastinate
	Glycereth-12	Lanolin alcohol
	Glyceryl alginate, G. collagenate	Lauryl PCA
	Glyceryl polymethacrylate	Lecithin
	Glycolic acid	Lesquerella fendleri oil
10	Glycolipids	Liposomes
	Glycosaminoglycans	Lysine PCA
	Glycosphingolipids	Macadamia ternifolia nut oil
	Gnetum amazonicum extract	Magnesium aspartate
	Grape ( <i>Vitis vinifera</i> ) seed oil	Maltitol
15	Hazel ( <i>Corylus avellana</i> ) nut oil	Manganese aspartate
	Honey extract	Mango ( <i>Mangifera indica</i> ) oil
	Hyaluronic acid	Mannan
	Hybrid safflower ( <i>Carthamus tinctorius</i> ) oil	Marine polyaminosaccharide
	Hydrogenated castor oil	Mauritella armata extract
20	Hydrogenated coconut oil	Maximilliana regia extract
	Hydrogenated cottonseed oil	Meadowfoam ( <i>Limnanthes alba</i> ) seed oil
	Hydrogenated lecithin	Melaleuca hypericifolia extract
	Hydrogenated palm oil	Methylsilanol elastinate, M. mannuronate
	Hydrogenated polyisobutene	Milk amino acids
25	Hydrogenated soybean oil	Mineral oil (Paraffinum liquidum)
	Hydrogenated soybean/cottonseed oil	Molybdenum aspartate
	Hydrogenated vegetable oil	Mouriri apiranga extract
	Hydrolyzed carbolipoprotein	Natto gum
	Hydrolyzed collagen	Nelumbium speciosum extract
30	Hydrolyzed elastin	Neopentyl glycol dicaprate
	Hydrolyzed fibronectin	Oat ( <i>Avena sativa</i> ) protein
	Hydrolyzed glycosaminoglycans	Ocyl hydroxystearate
	hydrolyzed keratin	Ophiopogon japonicus extract
	Hydrolyzed milk protein	Orange ( <i>Citrus aurantium dulcis</i> ) peel wax
35	Hydrolyzed oats	Palmetto extract
	Hydrolyzed pea protein	Pantethine
	Hydrolyzed placental protein	Panthenyl ethyl ether
	Hydrolyzed rice protein	Paraffin
	Hydrolyzed transgenic collagen	Partially hydrogenated soybean oil
40	Hydrolyzed serum protein	peanut ( <i>Arachis hypogaea</i> ) oil
	Hydrolyzed silk	Pecan ( <i>Carya illinoensis</i> ) oil
	Hydrolyzed sweet almond protein	PEG-4, -6, -8, -12
	Hydrolyzed wheat protein	PEG-70 mango glycerides
	Hydroxyethyl chitosan	PEG-75 shea butter glycerides
45	Inositol	PEG-75 shorea butter glycerides
	Isodecyl salicylate	PEG-100 stearate
	Isostearyl hydrolyzed animal protein	Pentaerythrityl
	Jajoba ( <i>Buxus chinensis</i> ) oil	isostearate/caprate/caprylate/adipate
	Jajoba esters	Pentaerythrityl stearate/caprate/caprylate/adipate
50	Keratin amino acids	Pentylene glycol
	Kiwi ( <i>Actinidia chinensis</i> ) fruit extract	Perfluoropolymethylisopropyl ether
	Kola ( <i>Cola acuminata</i> ) extract	Petrolatum
	Kukui ( <i>Aleurites molaccana</i> ) nut oil	Petroleum wax

Pfaffia spp. extract  
 Pistachio (*Pistacia vera*) nut oil  
 Placental protein  
 Plankton extract  
 5 Polyamino sugar condensate  
 Polybutene  
 Polyunsaturated fatty acids  
 Potassium DNA, P. lactate, P. PCA  
 PPG-8/SMDI copolymer  
 10 PPG-20 methyl glucose ether distearate  
 Propylene glycol dicaprylate/dicaprate  
 Propylene glycol dioctanoate  
 Pumpkin (*Cucurbita pepo*) seed oil  
 Quinoa (*Chenopodium quinoa*) extract  
 15 Rapeseed (*Brassica campestris*) oil  
 Rehmannia chinensis extract  
 Rice (*Oryza sativa*) bran oil  
 Rose Water  
 Royal jelly extract  
 20 Saccharide isomerate  
 Saccharomyces lysate extract  
 Saccharomyces/soy protein ferment  
 Safflower (*Carthamus tinctorius*) oil  
 Selenium aspartate, S. protein complex  
 25 Sericin  
 Serum albumin  
 Sesame (*Sesamum indicum*) oil  
 Shea butter (*Butyrospermum parkii*)  
 Shea butter (*Butyrospermum parkii*) extract  
 30 Shorea stenoptera butter  
 Silk amino acids  
 Sodium carboxymethyl beta-glucan  
 Sodium chondroitin sulfate  
 Sodium DNA, S. hyaluronate  
 35 Sodium lactate, S. PCA  
 Soube collagen  
 Soube transgenic elastin  
 Soybean (*Glycine soja*) oil  
 Spherical cellulose acetate  
 40 Spondias amara extract  
 Squalene  
 Stomach extract  
 Sunflower (*Helianthus annuus*) seed oil  
 Superoxide dismutase  
 45 Tissue extract  
 Tocopheryl acetate, T. linoleate  
 Tomato (*Solanum lycopersicum*) extract  
 Tormentil (*Potentilla erecta*) extract  
 Trehalose  
 50 Triundecanoin  
 Vegetable oil  
 Walnut (*Juglans regia*) oil  
 Watercress (*Nasturtium officinale*) extract

Wheat (*Triticum vulgare*) germ extract, germ oil  
 Yarrow (*Achillea millefolium*) extract  
 Wheat amino acids  
 Yeast (*Saccharomyces cerevisiae*) extract (Faex)  
 Yogurt filtrate  
 Zinc aspartate  
 Ziziphus jujuba extract

#### Naturilizer

2-Aminobutanol  
 Aminoethyl propanediol  
 Aminomethyl propanediol  
 Aminomethyl propanol  
 Ammonium carbonate  
 Calcium hydroxide  
 Diethanolamine  
 Ethanolamine  
 Glucamine  
 Isopropanolamine  
 Isopropylamine  
 2-Methyl-4-hydroxypyrrolidine  
 Morpholine  
 Sodium bromate  
 Succinic acid  
 Tetrahydroxypropyl ethylenediamine  
 Triethanolamine  
 Tromethamine

#### Oil absorbent

Hydrated silica  
 Polymethyl methacrylate  
 Silicon dioxide hydrate  
 Walnut (*Juglans regia*) shell powder

#### Ointment base

Borage (*Borago officinalis*) seed oil  
 Caprylic/capric/stearic triglyceride  
 Glyceryl cocoate  
 Hydrogenated coco-glycerides  
 Lanolin  
 Mink oil  
 Oleostearine  
 Tallow

#### Opacifier

Barium sulfate  
 C12-16 alcohols  
 Cetearyl octanoate  
 Cetyl myristate, C. palmitate  
 Cocamidopropyl lauryl ether  
 Glyceryl distearate  
 Glyceryl hydroxystearate  
 Glyceryl myristate, G. stearate



- Glycol distearate, G. stearate  
Magnesium myristate  
PEG-2 distearate, P. stearate  
PEG-2 stearate SE  
5 PEG-3 distearate  
Propylene glycol myristate, P.g. stearate  
Stearamide  
Stearamide DIBA-stearate  
Stearamide MEA  
10 Stearamide MEA-stearate  
Stearamidopropyl dimethylamine lactate  
Stearyl stearate  
Styrene homopolymer  
Styrene/acrylates copolymer  
15 Styrene/PVP copolymer  
Triisostearin PEG-6 esters
- Plasticizer**  
Acetyl tributyl citrate  
20 Acetyl triethyl citrate  
AMP-isostearoyl hydrolyzed wheat protein  
AMPD-isostearoyl hydrolyzed collagen  
Cyclohexane dimethanol dibenzoate  
Dibutyl phthalate  
25 Diethyl phthalate  
Diethylene glycol dibenzoate  
Diisopropyl sebacate  
Dimethicone copolyol  
Dimethyl phthalate  
30 Dipropylene glycol dibenzoate  
Ethyl ester of hydrolyzed keratin  
Glycerol tribenzoate  
Glycol  
Hydrolyzed serum protein  
35 Isocetyl salicylate  
Isodecyl benzoate  
Isoeicosane  
Isopropyl lanolate  
Isostearoyl hydrolyzed collagen  
40 Lauroyl hydrolyzed collagen  
Marine collagen  
Monostearyl citrate  
Neopentyl glycol dibenzoate  
Octyl benzoate, O. laurate  
45 PEG-60 shea butter glycerides  
Pentaerythrityl tetrabenzoate  
Polyoxyethylene glycol dibenzoate  
Polypropylene glycol dibenzoate  
PPG-12-PEG-50 lanolin  
50 PPG-20 ceryl ether  
PPG-20 lanolin alcohol ether  
Propylene glycol dibenzoate  
Propylene glycol myristyl ether acetate

Rice (Oryza sativa) bran wax  
Serum protein  
Tosylamide/epoxy resin  
Triacetin  
Tributyl citrate  
Triethyl citrate  
Trimethyl pentanediol dibenzoate  
Trimethylethanetribenzoate

**Polish**

Acrylates copolymer  
Aluminum silicate  
Neatsfoot oil  
Tallow

**Polymer**

Acrylamide sodium acrylate copolymer  
Acrylates-VA crosspolymer  
Acrylates/acrylamide copolymer  
Acrylates/hydroxyesters acrylates copolymer  
Acrylates/octylacrylamide copolymer  
Acrylates/steareth-20 methacrylate copolymer  
Adipic acid-epoxypropyl diethylenetriamine  
copolymer  
Adipic acid/dimethylaminohydroxypropyl  
diethylene triamine copolymer  
Ammonium acrylates copolymer  
Ammonium acrylates/acrylonitrogens copolymer  
AMP-acrylates copolymer  
AMP-isostearoyl hydrolyzed collagen  
Butylester of PVM-MA copolymer  
Calcium carrageenan  
Carboxylated vinylacetate terpolymer  
Cetareth-2 phosphate  
Cetareth-5 phosphate  
Cetareth-10 phosphate  
Cetareth-29, -34  
Coco-glucoside  
Cocodimonium hydroxypropyloxyethyl cellulose  
C12-13 pareth-4, -9, -23  
DEA-cetareth-2-phosphate  
DEA-oleth-5-phosphate  
DEA-oleth-20-phosphate  
Diglycol/CHDM/isophthalates/SIP copolymer  
Diisopropyl dimer dilinoleate  
Diisostearoyl trimethylolpropane siloxy silicate  
Diisostearyl dimer dilinoleate  
Dilinoleic acid  
Dodecanedioic acid/cetearyl alcohol/glycol  
copolymer  
Eclipta alba extract  
Ethyl ester of PVM/MA copolymer  
Ethylene/acrylic acid copolymer

- Ethylene/VA copolymer  
 Glycereth-26 phosphate  
 Hyaluronic acid  
 Hydrolyzed RNA  
 5 Hydrolyzed wheat protein polysiloxane polymer  
 Hydroxypropyltrimonium hydrolyzed collagen  
 Hydroxypropyltrimonium hydrolyzed wheat protein  
 Laneth-40  
 10 Lauryldimonium hydroxypropyl hydrolyzed soy protein  
 Methacrylol ethyl betaine/acrylates copolymer  
 Octylacrylamide/acrylates/butylaminoethyl methacrylate copolymer  
 15 Oleth-2 phosphate  
 Oleth-5 phosphate  
 PEG-3 lanolate  
 PEG-4 stearate  
 PEG-5M  
 20 PEG-7 glyceryl cocoate  
 PEG-8 glyceryl laurate  
 PEG-8/SMDI copolymer  
 PEG-9 castor oil  
 PEG-9M  
 25 PEG-11 babassu glycerides  
 PEG-12 palm kernel glycerides  
 PEG-12 stearate  
 PEG-14 avocado glycerides  
 PEG-15 glyceryl laurate  
 30 PEG-20 corn glycerides  
 PEG-20 evening primrose glycerides  
 PEG-20 glyceryl oleate  
 PEG-23 oleate  
 PEG-23M  
 35 PEG-29 castor oil  
 PEG-42 babassu glycerides  
 PEG-45 safflower glycerides  
 PEG-45M  
 PEG-60 evening primrose glycerides  
 40 PEG-60 hydrogenated castor oil  
 PEG-75 castor oil  
 PEG-90M  
 PEG-120 distearate  
 PEG-150 lanolin  
 45 PEG-160M  
 PG-hydroxycellulose lauryldimonium chloride  
 PG-hydroxyethylcellulose cocodimonium chloride  
 PG-hydroxyethylcellulose stearyldimonium chloride  
 50 Polyethylene, ionomer  
 Polyethylene, micronized  
 Polyethylene, oxidized  
 Polyglyceryl-2 polyhydroxystearate  
 Polymethacrylamidopropyltrimonium chloride  
 Polyquaternium-6, -7, -10, -11, -22, -39  
 Polysilicone-8  
 Potassium alginate  
 Potassium lauroyl collagen amino acids  
 Potassium lauroyl hydrolyzed soy protein  
 Potassium lauroyl wheat amino acids  
 PPG-8/SMDI copolymer  
 PPG-12/SMDI copolymer  
 PPG-51/SMDI copolymer  
 PVM/MA decadiene crosspolymer  
 PVP/dimethylaminoethylmethacrylate copolymer  
 PVP/VA copolymer  
 Sodium cocoyl hydrolyzed wheat protein  
 Steardimonium hydroxypropyl hydrolyzed wheat protein  
 Steareth-2 phosphate  
 TEA-acrylates/acrylonitrogens copolymer  
 Tosylamide/epoxy resin  
 Tosylamide/formaldehyde resin  
 Trideceth-5, -6, -7, -8  
 VA/butyl maleate/isobornyl acrylate copolymer  
 VA/crotonates/vinyl neodecanoate copolymer  
 Vinyl caprolactam/PVP/  
 dimethylaminoethylmethacrylate copolymer  
 Wheat (Triticum vulgare) protein  
 Xanthan gum  
  
**Powder**  
 Acrylates copolymer, spherical powder  
 Attapulgit  
 Boron nitride  
 Calcium aluminum borosilicate  
 Calcium carbonate  
 Cellulose triacetate  
 Corn (Zea mays) cob powder, starch  
 Hydrogenated jojoba wax  
 Magnesium carbonate, M. myristate  
 Magnesium stearate  
 Mica  
 Microcrystalline cellulose  
 Nylon-6  
 Nylon powder  
 Oat (Avena sativa) starch  
 Polyamide 12  
 Polyethylene  
 Polymethyl methacrylate  
 Polymethylsilsequioxane  
 PTFE  
 Silica  
 Silk powder  
 Spherical cellulose acetate

	Talc	Methyl paraben sodium
	Tapioca dextrin	Methylchloroisothiazolinone
	Zinc laurate	Methyldibromo glutaronitrile
5	<b><u>Powder, absorbent</u></b>	Methylisothiazolinone
	Aluminum starch octenylsuccinate	Methylparaben
	Clays (white, yellow, red, green, pink)	Mushroom (Cordyceps sabolifera) extract
	Sorbitol	Myrtrimonium bromide
	Tapioca	Pentasodium pentetate
10	<b><u>Preservative</u></b>	Pentetic acid
	Alcohol	Phenethyl alcohol
	Ascorbic acid	Phenol
	Ascorbyl palmitate	Phenyl mercuric acetate
15	Benzalkonium chloride	o-Phenylphenol
	Benzethonium chloride	Polyaminopropyl biguanide
	Benzoic acid	Polymethoxy bicyclic oxazolidine
	Benzyl alcohol	Potassium sorbate
	Benzylparaben	Propylparaben
20	5-Bromo-5 nitro-1,3-dioxane	Quaternium-15
	2-Bromo-2-nitropropane-1,2-diol	Salicylic acid
	Butylparaben	Sodium benzoate, S. bisulfate
	Calcium propionate	Sodium butylparaben, S. dehydroacetate
	Cetrimonium bromide	Sodium erythorbate, S. ethyl paraben
25	Cetyl pyridinium chloride	Sodium hydroxymethylglycinate
	Chloroxylenol	Sodium metabisulfite, S. methylparaben
	Chlorphenesin	Sodium o-phenylphenate
	o-Cymen-5-ol	Sodium propionate, S. propylparaben
	Diazolindinyl urea	Sodium pyrrithione, S. salicylate
30	Dichlorobenzyl alcohol	Sodium sulfite
	Dichlorophene	Sorbic acid
	Diiodomethyltolylsulfone	Tetrasodium EDTA
	Dimethyl hydroxymethyl pyrazole	Thimerosal
	Dimethyl oxazolidine	Thymol
35	Disodium EDTA	Tris (hydroxymethyl) nitromethane
	DMDM hydantoin	Trisodium EDTA, T. HEDTA
	EDTA	Usnic acid
	Erythorbic acid	Zinc PCA
	7-Ethylbicyclooxazolidine	<b><u>Propellant</u></b>
40	Ethylparaben	Butane
	Fomistopsis officinalis oil	Dimethyl ether
	Formaldehyde	Hydrofluorocarbon 152a
	Glutaral	Isobutane
	Glyceryl laurate	Propane
45	HEDTA	<b><u>Protein</u></b>
	Hexamine diisethionate	Albumen
	Hexetidine	Atelocollagen
	Imidazolidinyl urea	Bletia hyacinthina extract
	Isobutylparaben	Chrysanthemum morifolium extract
50	Isopropyl sorbate	Cocodimonium hydroxypropyl hydrolyzed collagen
	Isopropylparaben	Cocodimonium hydroxypropyl hydrolyzed keratin
	MDM hydantoin	
	Methenammonium chloride	

	Cocodimonium hydroxypropyl hydrolyzed soy protein	Sodium stearoyl hydrolyzed collagen
	Cocodimonium hydroxypropyl hydrolyzed wheat protein	Sodium undecylenoyl hydrolyzed collagen
5	Cocoyl hydrolyzed collagen	Sodium/TEA-lauroyl hydrolyzed collagen
	Collagen, C. phthalate	Sodium/TEA-lauroyl hydrolyzed keratin
	Collagen amino-polysiloxane hydrolyzate	Soluble collagen
	Deoxyribonucleic acid	Soluble keratin
	Desamido collagen	Soluble wheat protein
10	Elastin amino acids	Soy (Glycine soja) protein
	Embryo extract	Stearimonium hydroxypropyl hydrolyzed collagen
	Ethyl ester of hydrolyzed animal protein	Steartrimonium hydroxyethyl hydrolyzed collagen
	Fibronectin	TEA-cocoyl hydrolyzed collagen
	Gelatin	TEA-cocoyl hydrolyzed soy protein
15	Human placental protein	TEA-lauroyl collagen amino acids
	Hydrolyzed collagen	TEA-lauroyl keratin amino acids
	Hydrolyzed extensin	Trachea hydrolysate
	Hydrolyzed fish protein	Triethonium hydrolyzed collagen ethosulfate
	Hydrolyzed hemoglobin	Wheat (Triticum vulgare) germ extract, protein
20	Hydrolyzed keratin	Wheat amino acids
	Hydrolyzed lactalbumin	Wheat peptide
	Hydrolyzed milk protein	Wheat protein
	Hydrolyzed soy flour	
	Hydrolyzed sweet almond protein	<b><u>Protein, hydrolyzed</u></b>
25	Hydroxypropyltrimonium hydrolyzed collagen	Ethyl ester of hydrolyzed silk
	Isostearoyl hydrolyzed collagen	Hydrolyzed casein
	Keratin	Hydrolyzed elastin
	Lactoferrin	Hydrolyzed mushroom (Tricholoma matsutake) extract
30	Lactoglobulin	Hydrolyzed pea protein
	Lauryldimonium hydroxypropyl hydrolyzed collagen	hydrolyzed rice protein
	Marine collagen	Hydrolyzed serum protein
	Methylsilanol elastinate	Hydrolyzed silk
	Potassium abietoyl hydrolyzed collagen	Hydrolyzed soy protein
35	Potassium cocoyl hydrolyzed collagen	Hydrolyzed vegetable protein
	Potassium myristoyl hydrolyzed collagen	Hydrolyzed wheat protein
	Potassium oleoyl hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed casein
	Potassium undecylenoyl hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed silk
	Propyltrimonium hydrolyzed collagen	Hydroxypropyltrimonium hydrolyzed soy protein
40	Propyltrimonium hydrolyzed soy protein	Hydroxypropyltrimonium hydrolyzed wheat protein
	Propyltrimonium hydrolyzed wheat protein	
	Protein hydrolysates	<b><u>Reducing agent</u></b>
	Quaternium-79 hydrolyzed keratin	Dimyristyl thiodipropionate
	Quaternium-79 hydrolyzed silk	Hydrolyzed zein, iodized
45	Rice peptide	Hydrolyzed zein, sulfurized
	RNA	Zinc formaldehyde sulfoxylate
	Serum albumin, S. protein	
	Silk powder	<b><u>Refatting agent</u></b>
	Sodium caseinate	Caprylic/capric triglyceride PEG-4 esters
50	Sodium cocoyl hydrolyzed collagen	Cocamide MIPA
	Sodium cocoyl hydrolyzed soy protein	Diisostearyl dimer dilinoleate
	Sodium myristoyl hydrolyzed collagen	Hydrogenated palm kernel glycerides
	Sodium oleoyl hydrolyzed collagen	

	Isostearyl erucate, I. isostearate	Dimethicone copolyolamine
	Lecithin	Dimethiconol fluoroalcohol dilinoleic acid
	<u>Liposomes</u>	Dimethiconol hydroxystearate, D. stearate
	Magnesium sulfate hepta-hydrate	Diphenyl dimethicone
5	Octyldodecyl behenate, O. myristate	Disodium-PG-propyldimethicone thiosulfate
	bis-Octyldodecyl stearoyl dimer dilinoleate	Isopropyl hydroxybutyramide dimethicone
	Octyldodecyl stearoyl stearate	copolyol
	Octyl hydroxystearate	Methicone
	PEG-3 stearate	Octamethyl cyclotetrasiloxane
10	PEG-4 oleamide	Phenyl methicone, P. trimethicone
	PEG-6 capric/caprylic glycerides	Polyether Trisiloxane
	PEG-7 glyceryl cocoate	Polymethylsilsequioxane
	PEG-16	Polysilicone-8
	Propylene glycol dipelargonate	Quaternium-80
15		Silicone quaternium-1, -8
	<u>Resin</u>	Sodium-PG-propyl thiosulfate dimethicone
	Acrylates/hydroxyesters acrylates copolymer	Stearoxymethicone/dimethicone copolymer
	Ethylene vinyl acetate	Trimethylsilylamodimethicone
	Glyceryl abietate	
20	Methacrylol ethyl betaine/acrylates copolymer	<u>Skin calming agent</u>
	4-Methyl benzenesulfonamide	Cornflower (Centaurea cyanus) extract
	Polypropylene	Fennel (Foeniculum vulgare) extract
	Polyquaternium-16, -44	Fenugreek extract
	Sucrose benzoate	Linden (Tilia cordata) extract
25		Valerian (Valeriana officinalis) extract
	<u>Sequestrant</u>	
	Calcium acetate, C. phosphate, C. sulfate	<u>Skin cleanser</u>
	Encapsulation and entrapment systems	Dog rose (Rosa canina) hips extract
	Pentasodium triphosphate	Papaya (Carica papaya) extract
30	Phosphoric acid	Peach (Prunus persica) extract
	Potassium phosphate, P. sodium tartrate	Rose (Rosa multiflora) extract
	Silicon dioxide hydrate	Willow (Salix alba) extract
	Sodium citrate, S. gluconate	
	Sorbitol	<u>Skin conditioner</u>
35	Tartaric acid	Artemisia apiacea extract
	Tripotassium EDTA	Astrocaryum tucuma extract
	Trisodium NTA	Bactris gasipaes extract
		Biotin
	<u>Silicone</u>	Bishydroxyethyl biscetyl malonamide
40	Amino bispropyl dimethicone	Bletia hyacinthina extract
	Ammonium dimethicone copolyol sulfate	Borage (Borago officinalis) seed oil
	Amodimethicone	Borageamidopropyl phosphatidyl PG-dimonium
	Behenoxy dimethicone	chloride
	C16-18 alkyl methicone	Carbocysteine
45	Ceryl dimethicone copolyol	Catalpa kaempfera extract
	Cyclomethicone	Coco phosphatidyl PG-dimonium chloride
	Diisodecyl adipate	Cocodimonium hydroxypropyl hydrolyzed
	Diisostearoyl trimethylolpropane siloxy silicate	keratin
	Dimethicone	Collagen amino acids
50	Dimethicone copolyol	Cyclomethicone
	Dimethicone copolyol almondate	Dimethicone, D. copolyol acetate
	Dimethicone copolyol isostearate	Emblica officinalis extract
	Dimethicone copolyol olivate, D.c. phthalate	Equisetum arvense extract

- Ethyl ester of hydrolyzed animal protein  
 Evening primrose (*Oenothera biennis*) oil  
 Fomes fomentarius extract  
 Fomistopsis officinalis oil  
 5 Gelatin  
 Ginseng hydroxypropyltrimonium chloride  
     butylene glycol  
 Glycolipids  
 Glycosphingolipids  
 10 Gnetum amazonicum extract  
 Honey (Mel)  
 Hydrolyzed carbolipoprotein  
 Hydrolyzed elastin  
 Hydrolyzed pea protein  
 15 Hydrolyzed rice protein  
 Hydrolyzed serum protein  
 Hydrolyzed silk  
 Hydrolyzed soy protein  
 Hydrolyzed vegetable protein  
 20 Hydrolyzed wheat protein  
 Inga edulis extract  
 Kiwi (*Actinidia chinensis*) fruit extract  
 Laminaria japonica extract  
 Lecithin  
 25 Marsilea minuta extract  
 Nettle (*Urtica dioica*) extract  
 Palmitamidodecanediol  
 Pearls (*Margarita margarita*)  
 PEG-42 Ebiriko ceramides extract  
 30 Phenyl trimethicone  
 Phytantriol  
 Polygonum multiflorum extract
- 
- 35 Potassium cocoyl hydrolyzed collagen  
 Retinyl palmitate polypeptide  
 Salvia miltiorrhiza extract  
 Silt  
 Sodium cocoyl hydrolyzed collagen  
 40 Soluble transgenic elastin  
 Steartrimonium hydroxyethyl hydrolyzed  
 collagen  
 Stearyl methicone
- 45 **Skin healing**  
 Calendula officinalis extract  
 Glycoproteins  
 Hydrocotyl (*Centella asiatica*) extract  
 Oat (*Avena sativa*) extract  
 50 Sandalwood (*Santalum album*) extract  
 Spearmint (*Mentha viridis*) extract

**Skin lightening/whitening agent**

Ascorbic acid polypeptide  
 Bearberry (*Arctostaphylos uva-ursi*) extract  
 Hydroquinone-beta-D-glucopyranoside  
 Lemon (*Citrus medica limonum*) peel extract  
 Pearls (*Margarita margarita*)

**Skin protectant**

Acetylmethionyl methylsilanol elastinate  
 Allantoin, A. aluminum hydroxide  
 Aloe barbadensis, A.b. extract  
 Aluminum starch octenylsuccinate  
 Anise (*Pimpinella anisum*) extract  
 Arnica montana extract  
 Artemisia apiacea extract  
 Ascorbyl methylsilanol pectinate  
 Astrocaryum tucuma extract  
 Bactris gasipaes extract  
 Betaglukan  
 Bishydroxyethyl biscetyl malonamide  
 Bletia hyacinthina extract  
 C18-70 Isoparaffin  
 Calendula amurensis extract  
 Carboxymethyl chitin  
 Carcinia cambogia extract  
 Carrot (*Daucus carota*) extract  
 Carrot (*Daucus carota sativa*) oil  
 Catalpa kaempfera extract  
 Chenopodium album extract  
 Chitosan  
 Chrysanthemum morifolium extract  
 Collagen  
 Corn poppy (*Papaver rhoeas*) extract  
 Crataegus cuneata extract  
 Crataegus monogina extract  
 Cypress (*Cupressus sempervirens*) extract  
 Dimethicone  
 Dimethiconol fluoroalcohol dilinoleic acid  
 Dimethiconol hydroxystearate, D. stearate  
 Dimethylsilanol hyaluronate  
 Echitea glauca extract  
 Embryo extract  
 Entada phaseoloides extract  
 Equisetum arvense extract  
 Euphatorium fortunei extract  
 Euterpe precatoria extract  
 Fenugreek extract  
 fomistopsis officinalis oil, F. pinicola extract  
 Galla sinensis extract  
 Gentian (*Gentiana lutea*) extract  
 Gleditsia sinensis extract  
 Glyceryl ricinoleate  
 Glycolipids  
 Hierochloe odorata extract

Hyaluronic acid  
 Hydrogenated lecithin  
 Hydrolyzed lupine protein  
 Hydrolyzed milk protein  
 5 Hydrolyzed mushroom (*Tricholoma matsutake*)  
     extract  


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 Isodecyl salicylate  
 Jojoba (*Buxus chinensis*) oil  
 10 Lady's Thistle (*Silybum marianum*) extract  
 Laminaria japonica extract  
 Ligusticum jeholense extract  
 Liposomes  
 Magnolis spp. extract  
 15 Mango kernel oil  
     marsilea minuta extract  
 Melaleuca hypericifolia extract  
 Melaleuca uncinata extract  
 Melaleuca wilsonii extract  
 20 Methylsilanol tri PEG-8 glyceryl cocoate  
 Oat (*Avena stiva*) meal  
 Oyster (*Ostrea*) shell extract  
 Palmitamidodecanediol  
 Pearls (*Margarita margarita*)  
 25 Pentahydrosqualene  
 Perfluorodecalin  
 Perfluoropolymethylisopropyl ether  
 Petrolatum  
 PEG-8/SMDI copolymer  
 30 PEG-42 Ebiriko ceramides extract  
 Pfaffia spp. extract  
 Phospholipids  
 Plankton extract  
 Polygonum multiflorum extract  
 35 Pongamol  
 PPG-12/SMDI Copolymer  
 PPG-51/SMDI Copolymer  
 Propyltrimonium hydrolyzed collagen  
 Quinoa (*Chenopodium quinoa*) extract, oil  
 40 Salvia miltiorrhiza extract  
 Sambucus nigra extract  
 Shark liver oil  
 Shorea robusta extract  
 Sodium chondroitin sulfate  
 45 Soluble transgenic elastin  
 Steartrimonium hydroxyethyl hydrolyzed  
     collagen  
 Sterculia platanifolia extract  
 Superoxide dismutase  
 50 Trachea hydrolysate  
 Wheat (*Triticum vulgare*) germ extract, protein  
 White nettle (*Lamium album*) extract  
 Withania somniferum extract

Xanthozylum bungeanum extract  
 Zinc oxide

#### Skin smoothing agent

Althea officinalis extract  
 Coltsfoot (*Tussilago farfara*) leaf extract  
 Comfrey (*Symphytum officinale*) leaf extract  
 Plantain (*Plantago major*) extract  
 Sericin

#### Skin softening

Clays (white, yellow, red, green, pink)  
 Cucumber (*Cucumis sativus*) extract  
 Kelp (*Macrocystis pyrifera*) extract  
 Peach (*Prunus perisca*) extract  
 Phenethyl dimethicone

#### Skin soothing

Calendula officinalis extract  
 Cherry bark extract  
 Cucumber (*Cucumis sativus*) extract  
 Garlic (*Allium sativum*) extract  
 Hyssop (*Hyssopus officinalis*) extract  
 Jasmine (*Jasminum officinale*) extract  
 Kelp (*Macrocystis pyrifera*) extract  
 Mango kernel oil  
 Meadowsweet (*Spiraea ulmaria*) extract  
 Quince (*Pyrus cydonia*) seed extract  
 Slippery elm extract  
 Valerian (*Valeriana officinalis*) extract  
 Willow (*Salix alba*) extract  
 Witch hazel (*Hamamelis virginiana*) extract

#### Solubilizer

Acetyl monoethanolamine  
 Almond oil PEG-6 esters  
 2-Aminobutanol  
 Aminoethyl propanediol  
 Aminomethyl propanediol, A. propanol  
 Apricot kernel oil PEG-6 esters  
 Benzalkonium chloride  
 Butoxydiglycol  
 Butyl glucoside  
 Butylene glycol  
 Butyloctanol  
 Capric-caprylic mono-diglyceride  
 Capryl caprylglucoside  
 Caprylic/capric triglyceride  
 Caprylic/capric/linoleic triglyceride  
 Caprylic/capric/oleic triglycerides  
 Caprylyl/capryl glucoside  
 Ceteareth-20

	Ceteth-10	PEG-40 hydrogenated castor oil PCA isostearate
	Cetyl PPG-2 isodeceth-7 carboxylate	PEG-40 sorbitan diisostearate
	Cholesterol	PEG-45 palm kernel glycerides
	Corn oil PEG-6 esters	PEG-48 hydrogenated castor oil
5	Decaglycerol monodiolate	PEG-50 castor oil
	Diethanolamine	PEG-50 hydrogenated castor oil
	Dilaureth-10 phosphate	PEG-60 almond glycerides
	Dimethyl octynediol	PEG-60 castor oil
	Dioleth-8 phosphate	PEG-60 corn glycerides
10	Glycereth-7 -26	PEG-60 glyceryl isostearate, P.g. stearate
	Glyceryl caprylate, G. dilaurate	PEG-60 hydrogenated castor oil
	Glyceryl caprylate/caprate	PEG-60 lanolin
	Isoeicosane	PEG-70 mango glycerides
	Isopropanolamine	PEG-75 lanolin
15	Isosteareth-20	PEG-75 shea butter glycerides
	Laneth-5, -15	PEG-75 shorea butter glycerides
	Laureth-23	PEG-80 hydrogenated castor oil
	Methylated cyclodextrin	PEG-80 jojoba acid/alcohol
	Myreth-3	PEG-80 sorbitan laurate
20	Myreth-3-octanoate	PEG-100 castor oil
	Nonoxynol-10, -12, -14, -40, -50	PEG-100 hydrogenated castor oil
	Octoxynol-11, -40	PEG-120 jojoba acid/alcohol
	Oleoamphohydroxypropylsulfonate	PEG-200 trihydroxystearin
	Oleth-3, -5, -10, -15, -20, -25, -50	Poloxamer 407
25	Oleth-20 phosphate	Polyglyceryl-3 oleate
	PEG-4, -6, -8, -12, -16, -20, -32, -40	Polyglyceryl-6 dioleate
	PEG-4 dilaurate	Polyglyceryl-10 decaoleate, P. tetraoleate
	PEG-6 capric/caprylic glycerides	Polysorbate 20, 60, 80
	PEG-6 methyl ether	PPG-2-isodeceth-4, -6, -9, -12
30	PEG-8 distearate	PPG-3 isosteareth-9
	PEG-12 laurate	PPG-3 isoceteth-20 acetate
	PEG-15 castor oil	PPG-5-ceteth-10 phosphate
	PEG-18 stearate	PPG-5-ceteth-20
	PEG-20 glyceryl isostearate, P.g. laurate	PPG-6-decyltetradeceth-12, -20, -30
35	PEG-20 glyceryl oleate, P.g. stearate	PPG-12-PEG-65 lanolin oil
	PEG-20 methyl glucose sesquistearate	PPG-15 stearyl ether
	PEG-20 sorbitan isostearate	PPG-18 butyl ether
	PEG-20 sorbitan triisostearate	PPG-24 butyl ether
	PEG-24 hydrogenated lanolin	PPG-26-buteth-26
40	PEG-25 castor oil	PPG-33 butyl ether
	PEG-25 hydrogenated castor oil	PPG-33-buteth-45
	PEG-30 castor oil	PPG-40-PEG-60 lanolin oil
	PEG-30 glyceryl cocoate	PPG-50 cetyl ether
	PEG-30 glyceryl isostearate	Propylene glycol dicaprylate,
45	PEG-30 glyceryl laurate	dicaprylate/dicaprate
	PEG-30 glyceryl oleate	Ricinoleamide DEA
	PEG-30 glyceryl stearate	Ricinoleth-40
	PEG-33 castor oil	Sodium alpha olefin sulfonate
	PEG-35 castor oil	Sodium lauryl sulfate
50	PEG-36 castor oil	Sodium methyl naphthalenesulfonate
	PEG-40 castor oil	Triethanolamine
	PEG-40 glyceryl laurate, P.g. stearate	Trioctanoin
	PEG-40 hydrogenated castor oil	Tromethamine



<u>Solvent</u>		
	Acetic acid	Morpholine
	Acetone	Octyl benzoate, O. isononanoate
	Alcohol, A. denat	Octyl laurate, O. palmitate
5	Benzophenone	Octyldodecyl lactate
	Butoxydiglycol	Olive oil PEG-6 esters
	Butyl acetate	Peanut oil PEG-6 esters
	n-Butyl alcohol	Pentane
	Butyl myristate, B. stearate	Petroleum distillates
10	Butylene glycol	PEG-6 methyl ether
	C9-11 isoparaffin	PEG-12
	C10-11 isoparaffin	PEG-20 hydrogenated castor oil
	C10-13 isoparaffin	PEG-33 castor oil
	Caprylic alcohol	PEG-50 glyceryl cocoate
15	Castor (Ricinus communis) oil	Polyglyceryl-2 dioleate
	Cetearyl octanoate	Polyglyceryl-3 diisostearate
	Cetyl stearyl octanoate	Polyoxyethylene glycol dibenzoate
	Chlorobutanol	Polypropylene glycol dibenzoate
	Decyl alcohol	PPG-2 myristyl ether propionate
20	Diethylene glycol	PPG-3
	Diethylene glycol dibenzoate	PPG-20 lanolin alcohol ether
	Diethyl sebacate	Propyl alcohol
	Diisocetyl adipate	Propylene carbonate
	Diisopropyl adipate, D. sebacate	Propylene glycol
25	Dimethyl phthalate	Propylene glycol dibenzoate
	Dipropylene glycol	Propylene glycol methyl ether
	Dipropylene glycol dibenzoate	Propylene glycol myristate
	Ethoxydiglycol	Pyridine
	Ethyl acetate, E. lactate	Sesame (Sesamum indicum) oil
30	Ethyl myristate, E. oleate	Stearyl heptanoate
	2-Ethylhexyl isostearate	Toluene
	Glycerin	Xylene
	Glycofurool	
	Heptane	<u>SPF booster</u>
35	Hexyl alcohol	Borjoa sorbilis extract
	Hexylene glycol	Isohexadecyl salicylate
	Isobutyl stearate	Styrene/acrylates copolymer
	Isoceryl salicylate	Titanium dioxide
	Isodecyl benzoate, I. isononanoate	Yeast (Saccheromyces cerevisiae) extract (Faex)
40	Isodecyl octanoate, I. oleate	
	Isododecane	<u>Stabilizer</u>
	Isoeicosane	Acrylates-VA crosspolymer
	Isohexadecane	Acrylates/ceteth-20 methacrylates copolymer
	Isopropyl alcohol, I. myristate	Acrylates/steareth-20 methacrylate copolymer
45	Isostearyl stearyl stearate	Acrylates/vinyl isodecanoate crosspolymer
	Laureth-2 acetate	Alkyldimethylamine oxide
	Methoxydiglycol	C10 polycarbamyl polyglycol ester
	Methoxyisopropanol	Calcium alginate
	Methyl alcohol	Cocamidopropyl dimethylamine lactate
50	Methyl propanediol	Cocamine oxide
	Methylene chloride	Colloidal silica sols
	MEK	Cyclodextrin
	MIBK	Disodium EDTA
		Gellan gum

- Glyceryl diisostearate, G. stearate SE  
 Glyceryl mono-di-tri-caprylate  
 Hydrogenated coco-glycerides  
 Hydrogenated C12-18 triglycerides  
 5 Hydrogenated tallow glycerides  
 Hydrolyzed oat flour  
 Hydroxyoctacosanyl hydroxystearate  
 Karaya (*Sterculia urens*) gum  
 Laureth-3  
 10 Maltitol  
 Methylated cyclodextrin  
 Oleamide  
 PEG-40 stearate  
 PEG-40/dodecyl glycol copolymer  
 15 Perfluoropolymethylisopropyl ether  
 Polyethylene paste  
 PPG-5 lanolin wax  
 PPG-7-buteth-10  
 PPG-10 cetyl ether phosphate  
 20 Propylene carbonate, P. glycol alginate  
 PVM/MA decadiene crosspolymer  
 Sodium acrylates/vinyl isodecanoate  
 crosspolymer  
 Sodium carbomer  
 25 Sorbitan laurate  
 Stearic hydrazide  
 2,2',4,4'-Tetrahydroxybenzophenone  
 Tricaprin  
 Tricaprylin  
 30 Trilaurin  
 Trimyristin  
 Tripalmitin  
 Tristearin  
 35 Stimulant  
 Capsicum frutescens extract  
 Eleuthero ginseng (*Acanthopanax senticosus*)  
 extract  
 Guarana (*Paullinia cupana*) extract  
 40 Lactococcus hydrolysate  
 Methylsilanol elastinate  
 Methylsilanol hydroxyproline aspartate  
 TEA-hydroiodide  
 Tocopheryl nicotinate  
 45 Urocanic acid  
 Yeast (*Saccharomyces cerevisiae*) extrate (Faex)  
 Zedoary (*Curcuma zedoaria*) oil  
 Zinc DNA  
 50 Sunscreen  
 Basil (*Basilicum santum*) oil extract  
 Basil (*Ocimum basilicum*) extract  
 Benzophenone-3 -4  
 3-Benzylidene camphor  
 Borojoa sorbilis extract  
 C12-15 alkyl benzoate  
 Coffee (*Coffea arabica*) bean extract  
 Ethyl salicylate  
 Glyceryl PABA  
 Homosalate  
 Hydroquinone-beta-D-glucopyranoside  
 Isoamyl p-methoxycinnamate  
 Isopropylbenzyl salicylate  
 Job's tears (*Coix lacryma-jobi*) extract  
 Menthyl anthranilate  
 Octyl dimethyl PABA, O. methoxycinnamate  
 Octyl salicylate, O. triazone  
 Oryzanol  
 Pansy (*Viola tricolor*) extract  
 PEG-25 PABA  
 Phenylbenzimidazole sulfonic acid  
 Rice (*Oryza sativa*) bran oil  
 TEA-salicylate  
 Titanium dioxide  
Sunscreen UVB  
 Benzophenone-5  
 Eclipta alba extract  
 PEG-25 PABA  
 Steareth-100  
 Tridecyl salicylate  
Superfating agent  
 Linoleamide DEA  
 PEG-20 almond glycerides  
 PEG-60 lanolin  
 PEG-75 lanolin  
Surfactant  
 Alkyl dimethyl betaine  
 Alkyldimethylamine oxide  
 Ammonium cocoyl sarcosinate  
 Ammonium C12-15 alkyl sulfate  
 Ammonium dimethicone copolyol sulfate  
 Ammonium laureth-5 sulfate  
 Ammonium laureth-12 sulfate  
 Ammonium laureth sulfate  
 Ammonium lauroyl sarcosinate  
 Ammonium lauryl sulfate, A.I. sulfosuccinate  
 Ammonium myreth sulfate  
 Ammonium nonoxynol 4 sulfate  
 Azelamide MEA  
 C20-40 alcohol ethoxylate  
 C30-50 alcohol ethoxylate  
 C40-60 alcohol ethoxylate  
 Calcium dodecylbenzene sulfonate

	Calcium laurate	Disodium oleth-3 sulfosuccinate
	Ceteareth-2 phosphate	Disodium ricinoleamido MEA-sulfosuccinate
	Ceteareth-5 phosphate	Disodium tallamido MEA-sulfosuccinate
	Ceteareth-10 phosphate	Disteareth-2 lauroyl glutamate
5	Cetoleth-25	Disteareth-5 lauroyl glutamate
	Cetyl betaine, C. phosphate	Ethoxylated fatty alcohol
	Cocamide MEA ethoxylate	Ethoxylated glycerol sorbitan saturated fatty acid ester
	Cocamidopropyl betaine, potassium salt	Ethoxylated glycerol sorbitan unsaturated fatty acid ester
	Cocamidopropyl betaine ammonium salt	Glycereth-25 PCA isostearate
10	Cocamidopropyl hydroxy sultaine	Glycereth-26 phosphate
	Cocamidopropyl hydroxy sultaine, ammonium salt	glyceryl hydroxystearate
	Cocamidopropyl hydroxy sultaine, potassium salt	Hydrogenated tallowoyl glutamic acid
	Cocamidopropylamine oxide	Isopropyl hydroxybutyramide dimethicone copolyol
15	Coceth-7 carboxylic acid	Lauramidopropyl betain
	Coco-glucoside	Laureth-1, -2, -3, -4, -7, -12, -16
	Cocoamphodiacetate lauryl-laureth sulfate	Laureth-3 carboxylic acid, L. phosphate
	Cocoamphodiacetate lauryl sulfate	Laureth-5 carboxylic acid
	Cocoamphodiacetate trideceth sulfate	Laureth-11 carboxylic acid
20	Coco phosphatidyl PG-dimonium chloride	Lauroyl sarcosine
	N-Cocoyl-(3-amidopropyl)-N,N-dimethyl-N-ethyl ammonium ethyl sulfate	Lauryl dimethylamine cyclocarboxypropylolate
	Cocoyl glutamic acid	Laryl hydroxyethyl imidazoline
	Cocoyl hydrolyzed soy protein	Linoleamide DEA
25	Cocoyl hydroxyethyl imidazoline	Magnesium laureth-8 sulfate
	C11-15 pareth-9, -12, -20, -30, -40	Meroxapol 105, 171, 172
	C12-13 pareth sulfate	MEA-lauryl sulfate
	C12-13 pareth-5 carboxylic acid	Mixed isopropanolamines myristate
	C12-15 pareth-12	Myreth-7
30	C14-15 pareth-8 carboxylic acid	Myristoyl sarcosine
	DEA-oleth-5-phosphate	Myristyl alcohol
	DEA-oleth-20-phosphate	Nonoxynol-7, -9, -13, -15
	Deceth-3, -6, -8	Nonoxynol-10 carboxylic acid
	Decyltetradeceth-25	Octoxynol-10, -12
35	Diceteareth-10 phosphoric acid	Octyldodeceth-10, -16
	Dimethicone copolyol	Oleoyl sarcosine
	Dimethicone copolyol almondate, D.c. isostearate	Oleth-2 phosphate
	Dimethicone copolyol laurate, D.c. olivate	Oleth-5 phosphate
40	Dimethicone copolyol phthalate	Oleyl betaine
	Dimethicone copolyolamine	Oleyl hydroxyethyl imidazoline
	Dimethicone propyl PG-betaine	Palmitamine oxide
	Diocetyldodeceth-2 lauroyl glutamate	Palmityl betaine
	Diocetyldodeceth-5 lauroyl glutamate	PCA ethyl cocoyl arginate
45	Diocetyldodecyl lauroyl glutamate	PEG-7 hydrogenated castor oil
	Disodium capryloamphodiacetate	PEG-8 caprylic/capric glycerides
	Disodium cocoamphodiacetate	PEG-8 laurate
	Disodium hydrogenated tallow glutamate	PEG-8 stearate
	Disodium laneth-5 sulfosuccinate	PEG-15 glyceryl stearate
50	Disodium lauramido MEA-sulfosuccinate	PEG-25 glyceryl isostearate
	Disodium laureth sulfosuccinate	PEG-27 lanolin
	Disodium oleamido MIPA-sulfosuccinate	PEG-30 lanolin
	Disodium oleamido PEG-2 sulfosuccinate	PEG-40 castor oil

	PEG-40 glyceryl stearate	Sodium laureth-11 carboxylate
	PEG-40 jojoba oil, P. lanolin	Sodium laureth-13-carboxylate
	PEG-60 glyceryl isostearate, P.g. stearate	Sodium laureth sulfate
	PEG-80 jojoba oil, P. sorbitan laurate	Sodium lauroamphoacetate
5	PEG-120 jojoba oil	Sodium lauroyl glutamate
	Pentasodium triphosphate	Sodium lauroyl hydrolyzed collagen
	Poloxamer 101, 122	Sodium lauroyl sarcosinate, S.I. taurate
	Polyglyceryl-2 dioleate	Sodium magnesium laureth sulfate
	Polysiloxane-polyether copolyer	Sodium methyl cocoyl taurate
10	Potassium cocoyl glycinate	Sodium methyl oleoyl taurate
	Potassium cocoyl hydrolyzed collagen	Sodium myristoyl glutamate
	Potassium C9-15 phosphate ester	Sodium myristoyl hydrolyzed collagen
	Potassium lauroyl hydrolyzed collagen	Sodium myristoyl sarcosinate
	Potassium lauryl sulfate	Sodium myristyl sulfate
15	Potassium myristoyl hydrolyzed collagen	Sodium nonoxynol-6 phosphate
	Potassium oleoyl hydrolyzed collagen	Sodium octoxynol-2 ethane sulfonate
	Potassium palmitate	Sodium octyl sulfate
	Potassium undecylenoyl hydrolyzed collagen	Sodium oleoyl hydrolyzed collagen
	PPG-2-isodeceth-4, -6, -9, -12	Sodium stearyl hydrolyzed collagen
20	PPG-6 C12-18 pareth-11	Sodium trideceth sulfate
	Protein hydrolysates	Sodium undecylenoyl hydrolyzed collagen
	Quaternium-80	Sodium/TEA-lauroyl hydrolyzed collagen
	Quillaja saponaria extract	Sodium/TEA-lauroyl hydrolyzed keratin
	Raffinose laurate, R. myristate, R. oleate	Sorbitan isostearate
25	Raffinose palmitate, R. stearate	Stearoyl sarcosine
	Ricinoleamidopropyl betain	Sulfated castor oil
	Silicone quaternium-1, -8, -9	TEA-cocoyl glutamate
	Sodium alpha olefin sulfonate	TEA-cocoyl hydrolyzed collagen
	Sodium cocoamphoacetate	TEA-cocoyl hydrolyzed soy protein
30	Sodium cocoyl hydrolyzed wheat protein	TEA-C12-15 alkyl sulfate
	Sodium cocoyl isethionate	TEA-hydrogenated tallow glutamate
	Sodium C12-13 sulfate	TEA-lauroyl glutamate
	Sodium C12-14 pareth-2 sulfate	TEA-lauroyl keratin amino acids
	Sodium C12-15 pareth-3 sulfonate	TEA-lauroyl sarcosinate
35	Sodium C12-15 pareth-7 carboxylate	TEA-lauryl sulfate
	Sodium C12-15 pareth-7 sulfonate	TEA-myristoyl hydrolyzed collagen
	Sodium C12-15 pareth-8 carboxylate	Tocophereth-5 -10 -18 -20 -30 -50 -70
	Sodium C12-15 pareth-15 sulfonate	Trideceth-7 carboxylic acid
	Sodium C12-18 alkyl sulfate	Trideceth-9
40	Sodium C13-17 alkane sulfonate	Trideceth-19-carboxylic acid
	Sodium C14-16 olefin sulfonate	Tridecyl ethoxylate
	Sodium cetearyl sulfate	Triethanolamine C10-14 sulfate
	Sodium cetyl oleyl sulfate	Trilauryl phosphate
	Sodium coco-tallow sulfate	Wheat germamidopropyl betaine
45	Sodium cocoyl glutamate	Yucca vera extract
	Sodium cocoyl hydrolyzed collagen	
	Sodium cocoyl hydrolyzed soy protein	<u>Suspending agent</u>
	Sodium cocoyl sarcosinate	Acrylates/ceteth-20 methacrylates copolymer
	Sodium dimethicone copolyol acetyl	Acrylates/steareth-20 methacrylate copolymer
50	methyltaurate	Algin
	Sodium hydrogenated tallow glutamate	Bentonite
	Sodium isodecyl sulfate	C10 polycarbamyl polyglycol ester
	Sodium laureth-5 carboxylate	Calcium alginate

	Carbomer, C. 934	_____	/C10-C30 alkyl acrylate crosspolymer
	Carrageenan ( <i>Chondrus crispus</i> )	_____	/ceteth-20 itaconate copolymer
	Cellulose gum	_____	/ceteth-20 methacrylates copolymer
	Cetyl hydroxyethylcellulose	_____	/steareth-20 itaconate copolymer
5	Dihydrogenated tallow phthalic acid amide	_____	/steareth-20 methacrylate copolymer
	Distearyl phthalic acid amide	_____	/steareth-50 acrylate copolymer
	Guar ( <i>Cyanopsis tetragonoloba</i> ) gum	_____	/vinyl isodecanoate crosspolymer
	Hectorite	_____	acid/acrylonitrogens copolymer
	Hydroxypropylcellulose	_____	
10	Isobutylene/MA copolymer	_____	/magnesium hydroxide stearate
	Magnesium aluminum silicate	_____	acrylates/acrylonitrogens copolymer
	Methylcellulose	_____	alginate
	Pentasodium triphosphate	_____	alcohol
	Polyethylene, P. micronized	_____	acid
15	Propylene glycol alginate	_____	alcohol, B. behenate
	Quaternium-18 bentonite	_____	nite
	Quaternium-18 hectorite	_____	olycarbamyl polyglycol ester
	Sodium magnesium silicate	_____	5 alcohols
	Sodium polynaphthalenesulfonate	_____	6 alcohols
20	Stearalkonium bentonite, S. hectorite	_____	6 acid
	Steareth-10 allyl ether/acrylates copolymer	_____	Calcium alginate
	_____ ( <i>Astragalus gummifer</i> ) gum	_____	Calcium carrageenan
	_____ ribehenin	_____	Caprylic alcohol
	_____ rihydroxystearin	_____	Carbomer
25	_____ omethamine magnesium aluminum silicate	_____	Carboxymethyl hydroxyethylcellulose
	_____ anthan gum	_____	Carrageenan ( <i>Chondrus crispus</i> )
	<b>Sweetener</b>	_____	Cellulose, C. gum
	_____ saccharin	_____	Cetearyl alcohol, C. behenate
30	_____	_____	Cetearyl octanoate, C. stearate
	_____ acid	_____	Cetostearyl stearate
	_____ acid	_____	Cetyl alcohol
	_____, ammoniated	_____	Cetyl hydroxyethylcellulose
	_____ corn starch	_____	Cetyl myristate, C. palmitate
35	_____	_____	Cocamide
	_____	_____	Cocamide MEA, C. MIPA
	_____	_____	Cocamidopropylamine oxide
	_____	_____	Coco-betaine
	_____ saccharin	_____	Coco-rapeseedate
40	_____	_____	Coco/oleamidopropyl betaine
	_____	_____	Cocoyl amido hydroxy sulfo betaine
	_____	_____	Cocoyl monoethanolamide ethoxylate
	_____ <b>accelerator</b>	_____	Colloidal silica sols
	_____ tyrosine	_____	DEA-hydrolyzed lecithin
45	Carrot ( <i>Daucus carota</i> ) extract	_____	DEA-linoleate
	_____ acetyl tyrosinate methylsilanol	_____	DEA-oleth-3 phosphate
	_____ droxyacetone	_____	DEA oleth-10 phosphate
	_____ maly tyrosinate	_____	Decyl alcohol
	_____ alba extract in white emulsion	_____	Dextran
50	_____ tyrosinate	_____	Dextrin
	_____ <b>ckener</b>	_____	Dilaureth-10 phosphate
	_____ -VA crosspolmer	_____	Dioleth-8 phosphate
		_____	DMHF
		_____	Ethoxylated fatty alcohol

	Gellan gum	
	Glyceryl behenate, G. stearate	
	Glyceryl polymethacrylate	
	Guar (Cyanopsis tetragonoloba) gum	
5	Guar hydroxypropyltrimonium chloride	
	Hectorite	
	Hexyl alcohol	
	Hydrated silica	
	Hydrogenated rapeseed oil	
10	Hydrogenated starch hydrolysate	
	Hydrogenated talloweth-60 myristyl glycol	
	Hydrolyzed oat flour	
	Hydrolyzed transgenic collagen	
15	Hydroxyethylcellulose	
	Hydroxypropyl chitosan	PEG-6 beeswax
	Hydroxypropyl guar	PEG-7 hydrogenated castor oil
	Hydroxypropyl methylcellulose	PEG-8
	Hydroxypropylcellulose	PEG-8 dioleate, P. distearate
20	Isoceteth-10	PEG-8 stearate
	Isostearamide DEA	PEG-9M
	Isostearamidopropylamine oxide	PEG-12 beeswax
	Isostearoamphopropionate	PEG-18 glyceryl oleate/cocoate
	Jojoba wax	PEG-23M
25	Karaya (Sterculia urens) gum	PEG-28 glyceryl tallowate
	L _____ DEA, L. MEA, L. MIPA	PEG-40 jojoba oil
	L _____ midopropyl betaine	PEG-45M
	Laureth-10	PEG-50 tallow amide
	L _____ -linoleic DEA	PEG-55 propylene glycol oleate
30	L _____ -linoleoyl diethanolamide	PEG-75 stearate
	L _____ -myristoyl diethanolamide	PEG-90M
	L _____ alcohol, L. betaine	PEG-100 stearate
	L _____ amide DEA, L. MEA	PEG-120 methyl glucose dioleate
	L _____ eic acid	PEG-150 distearate
35	L _____ mic acid	PEG-150 pentaerythrityl tetrastearate
	L _____ bean (Ceratonia siliqua) gum	PEG-160M
	Magnesium aluminum silicate	PEG-200 glyceryl stearate
	MDM hydantoin	PEG-200 glyceryl tallowate
	Methylcellulose	Pentaerythrityl tetrabenenate
40	Montmorillonite	Pentaerythrityl tetrastearate
	Myristamide DEA, M. MEA	Poloxamer 105, 124, 185, 237, 238, 338, 407
	Myristamine oxide	Polyacrylic acid
	Myristyl alcohol	Polysorbate 20
	Octacosanyl stearate	Potassium alginate, P. chloride
45	Oleamide, O. DEA, O. MEA	Potassium oleate, P. stearate
	Palmitamide MEA	PPG-5-ceteth-10 phosphate
	Pectin	Propylene glycol stearate
	PEG-2 laurate	PVM/MA decadiene crosspolymer
	PEG-3 distearate, P. lauramide	PVP
50	PEG-3 lauramine oxide	Quaternium-18 bentonite
	PEG-4 diisostearate, P. oleamide	Quaternium-18 hectorite
	PEG-5M	Rapeseed oil, ethoxylated high erucic acid

- Ricinoleamide MEA  
Sesamide DEA  
Sodium acrylates/vinyl isodecanoate crosspolymer  
Sodium carbomer, S. carrageenan  
5 Sodium ceteth-13-carboxylate  
Sodium chloride  
Sodium magnesium silicate, S. stearate  
Sorbitan sesquiisostearate, S. tristearate  
Soyamide DEA  
10 Soyamidopropyl betaine  
Starch polyacrylonitrile copolymer-potassium salt  
Starch polyacrylonitrile copolymer-sodium salt  
Stearalkonium bentonite, S. hectorite  
Stearamide  
15 Stearamide DEA, S. MEA, S. MEA-stearate  
Stearamidopropyl dimethylamine lactate  
Stearamine oxide  
Steareth-10 allyl ether/acrylates copolymer  
Stearic acid  
20 Stearyl alcohol  
Synthetic beeswax  
Tallowamide MEA  
TEA-acrylates/acrylonitrogens copolymer  
Tragacanth (Astragalus gummifer) gum  
25 Tribehenin  
Trihydroxystearin  
Tromethamine magnesium aluminum silicate  
Wheat germamide DEA  
Wheat germamidopropyl betain  
30 Xanthan gum
- Thixotrope**  
Bentonite  
Hectorite  
35 Sodium magnesium silicate  
Stearalkonium bentonite
- Toner**  
Althea officinalis extract  
40 Clover (Trifolium pratense) extract  
Dog rose (Rosa canina) hips extract  
Ginseng (Panax ginseng) extract  
Horsetail extract  
Lemon bioflavonoids extract  
45 Meadowsweet (Spiraea ulmaria) extract  
Nettle (Urtica dioica) extract  
Rose (Rosa multiflora) extract  
Rosemary (Rosmarinus officinalis) extract  
50 **UVA absorber**  
Benzophenone-1, -2, -3, -4, -6, -8, -9, -11, -12  
Butyl methoxydibenzoylmethane  
Corallina officinalis
- Isopropyl dibenzoylmethane  
Menthyl anthranilate  
2,2',4,4'-Tetrahydroxybenzophenone  
Titanium dioxide  
Zinc oxide
- UVB absorber**  
Argania spinosa oil  
Benzophenone-1 -2 -3 -4 -6 -9 -11  
Corallina officinalis  
DEA-methoxycinnamate  
Drometrizole  
Ethyl dihydroxypropyl PABA  
Etocrylene  
homosalate  
Isoamyl p-methoxycinnamate  
Isopropyl methoxycinnamate  
Isopropylbenzyl salicylate  
4-Methylbenzylidene camphor  
Octocrylene  
Octrizole  
Octyl dimethyl PABA  
Octyl methoxycinnamate  
Octyl salicylate, O. triazne  
PABA  
PEG-25 PABA  
Phenylbenzimidazole sulfonic acid  
Shea butter, ethoxylated  
TEA-salicylate  
Titanium dioxide  
TriPABA panthenol  
Zinc oxide
- Vegetable oil**  
Apricot (Prunus armeniaca) kernel oil  
Avocado (Persea gratissima) oil  
Baobab oil  
Calendula officinalis oil  
Chaulmoogra (Taraktogenos kurzii) oil  
Coconut (Cocos nucifera) oil  
Corn (Zea mays) oil  
Cottonseed (Gossypium) oil  
Gold of pleasure oil  
Grape (Vitis vinifera) seed oil  
Hazel (Corylus avellana) nut oil  
Hybrid sunflower (Helianthus annuus) oil  
Hydrogenated coconut oil  
Hydrogenated cottonseed oil  
Hydrogenated vegetable oil  
Jojoba (Buxus chinensis) oil  
Kukui (Aleurites moluccana) nut oil  
Macadamia ternifolia nut oil  
Meadowfoam (Limnanthes alba) seed oil

- Mexican poppy oil  
 Palm (*Elaeis guineensis*) kernel oil  
 Partially hydrogenated soybean oil  
 Peach (*Prunus persica*) kernel oil  
 5 Peanut (*Arachis hypogaea*) oil  
 Pecan (*Carya illinoensis*) oil  
 Pumpkin (*Cucurbita pepo*) seed oil  
 Quinoa (*Chenopodium quinoa*) oil  
 Rapeseed (*Brassica capestris*) oil  
 10 Rice (*Oryza sativa*) bran oil  
 Safflower (*Carthamus tinctorius*) oil  
 Seabuckthorn oil  
 Sesame (*Sesamum indicum*) oil  
 Sisymbrium irio oil  
 15 Soybean (*Glycine soja*) oil  
 Sunflower (*Helianthus annuus*) seed oil  
 Walnut (*Juglans regia*) oil  
 Wheat (*Triticum vulgare*) germ oil  
 Wild borage oil  
 20 Vitamin  
 Aesculus chinensis extract  
 Ascorbic acid  
 Ascorbic acid polypeptide  
 25 Ascorbyl palmitate  
 Biotin  
 Calcium pantothenate  
 Cholecalciferol  
 Cyanocobalamin  
 30 Eclipta alba extract  
 Emblica officinalis extract  
 Equisetum arvense extract  
 Ergocalciferol  
 Esculin  
 35 Ethyl linoleate  
 Folic acid  
 Laminaria japonica extract  
 Marsilea minuta extract  
 Melaleuca bracteata extract  
 40 Menadione  
 Nasturtium sinensis extract  
 Nelumbium speciosum extract  
 Niacin  
 Niacinamide, N. ascorbate  
 45 Nicotinamide  
 Nicotinic acid  
 Ocimum basilicum extract  
 Panthenyl triacetate  
 Pantothenic acid  
 50 Phytonadione  
 Pyridoxine HCl  
 Retinol  
 Retinyl acetate, R. palmitate

Retinyl palmitate polypeptide  
 Retinyl propionate  
 Riboflavin tetraacetate  
 Sodium ascorbate  
 Thiamine HCL  
 Tocopherol  
 Tocopheryl acetate, T. succinate

#### Wax

Bayberry (*Myrica cerifera*) wax  
 Behenoxy dimethicone  
 C16-18 alkyl methicone  
 Candelilla (*Euphorbia cerifera*) wax  
 Carnauba (*Copernicia cerifera*) wax  
 Ceresin  
 Cetyl dimethicone, C. isooctanoate  
 Dialkyldimethylpolysiloxane  
 Dimethiconol hydroxystearate  
 Dimethiconol stearate  
 Hydrogenated castor oil  
 Hydrogenated cottonseed oil  
 Hydrogenated jojoba oil, H.j. wax  
 Hydrogenated palm kernel oil  
 Hydrogenated rapeseed oil  
 Hydrogenated rice bran wax  
 hydrogenated vegetable oil  
 Isooctadecyl isononanoate  
 Japan (*Rhus succedanea*) wax  
 Jojoba esters  
 Montan (Montan cera) wax  
 Ouricury wax  
 Ozokerite  
 Polyglyceryl-3 beeswax  
 Spermaceti  
 Stearoxymethicone/dimethicone copolymer  
 Stearoxytrimethylsilane  
 Synthetic candelilla wax  
 Synthetic carnauba

#### Wetting agent

Benzalkonium chloride  
 Benzethonium chloride  
 Cetalkonium chloride  
 Ceteareth-20  
 Ceteth-20  
 Cetyl pyridinium chloride  
 Cocoamphodipropionic acid  
 Decaglycerol monodiolate  
 Deceth-9  
 Dihydroabietyl methacrylate  
 Dimethicone copolyol methyl ether  
 Dimethicone copolyol phthalate  
 Dioctyl sodium sulfosuccinate



- Ethyl hydroxymethyl oleyl oxazoline  
Hydroxylated milk glycerides  
Isolaureth-6  
Lanolin acid  
5 Lauryl pyrrolidone  
Lecithin  
Methyl hydrogenated rosinat  
Methyl rosinat  
Nonyl nonoxynol-5  
10 Octoxynol-8, 70  
Oleth-15  
Oleth-20 phosphate  
PEG-9 castor oil  
PEG-15 castor oil  
15 PEG-20 glyceryl stearate  
PEG-20 sorbitan triisostearate  
PEG-45 palm kernel glycerides  
PEG-60 almond glycerides, P.corn glycerides  
PEG-60 shea butter glycerides  
20 PEG-70 mango glycerides  
PEG-75 shorea butter glycerides  
PEG-80 sorbitan laurate  
Poloxamer 123, 181, 182, 184, 235, 334  
Polyether trisiloxane  
25 Polyglyceryl-3 oleate  
Polyglyceryl-6 dioleate  
Polyglyceryl-10 tetraoleate  
Polysorbate 60, 80  
PPG-2-isodeceth-4, -6, -9, -12  
30 PPG-10 lanolin alcohol ether  
Propylene glycol  
Sodium butoxyethoxy acetate  
Sodium capryloamphohydroxypropylsulfonate  
Sodium decyl diphenyl ether sulfonate  
35 Sodium dodecyldiphenyl ether sulfonate  
Sodium lauryl sulfate  
Sulfated castor oil  
Triisocetyl citrate  
Triisostearin PEG-6 esters  
40 Yucca vera extract

Claims:

1. A cosmetic composition comprising:  
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component randomly bonded to at least one poly(acrylic acid) component said polymer network capable of aggregation in response to a change in temperature; and  
a cosmetically active agent which imparts a preselected cosmetic effect, said carrier and said agent disposed within an aqueous-based medium.
2. A cosmetic composition for topical application, comprising:  
a cosmetically acceptable carrier, comprising a reverse thermal viscosifying polymer network comprising at least one poloxamer component capable of aggregation in response to a change in temperature randomly bonded to at least one poly(acrylic acid) component; and  
a cosmetically active agent selected to treat imperfections or disorders of the skin, said carrier and said agent disposed within an aqueous-based medium.
3. The cosmetic composition of claim 1, wherein the cosmetic composition is a shampoo and the cosmetically active agent comprises a cleansing surfactant.
4. The cosmetic composition of claim 1, wherein the cosmetic composition is a moisturizer and the cosmetically active agent comprises a moisturizer.
5. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunscreen and the cosmetically active agent comprises a UV-absorbing agent.
6. The cosmetic composition of claim 1, wherein the cosmetic composition is an acne cream and the cosmetically active agent comprises an antiacne agent.

7. The cosmetic composition of claim 1, wherein the cosmetic composition is a hair straightener and the cosmetic agent comprises a base for increasing the pH.

8. The cosmetic composition of claim 1, wherein the cosmetic composition is a sunless tanning lotion and the cosmetically active agent comprises skin tinting agent.

9. The cosmetic composition of claim 1, wherein the cosmetic composition is an antiperspirant and the cosmetically active agent comprises aluminum chlorhydrate.

10. The cosmetic composition of claim 1, wherein the cosmetic composition is a shaving cream and the cosmetically active agent comprises an emollient and a foaming surfactant.

11. The cosmetic composition of claim 1, wherein the cosmetic composition is a face cosmetic and the cosmetically active agent comprises a pigment.

12. The cosmetic composition of claim 1 or 2, wherein the cosmetic agent comprises a hydrophobic material, wherein the cosmetically acceptable carrier stabilizes the hydrophobic material in the aqueous medium.

13. The cosmetic composition of claim 2, wherein said cosmetic agent selected to treat imperfections or disorders of the skin is selected from the group consisting of acidulents, antiacne agents, anti-aging agents, anti-inflammatories, anti-irritants, antioxidants, depilatories, detergents, disinfectants, emollients, exfoliants, humectants, lubricants, moisturizers, skin conditioners, skin protectants, skin lightening agents, skin soothing agents, sunscreens, and tanning accelerators and mixtures thereof.

14. The composition of claim 4, wherein said composition further comprises a cosmetic agent selected from the group consisting of humectants and emollients.

15. The composition of claim 1 or 2, further comprising one or more additives selected from the group consisting of preservatives, abrasives, acidulents, antiacne agents, anti-aging agents, antibacterials, anticaking, anticaries agents, anticellulites, antidandruff, antifungal, anti-inflammatories, anti-irritants, antimicrobials, antioxidants, astringents, antiperspirants, antiseptics, antistatic agents, binders, buffers, additional carriers, chelators, cell stimulants, cleansing agents, conditioners, deodorants, depilatories, detergents, dispersants, emollients, emulsifiers, enzymes, essential oils, exfoliants, fibers, film forming agents, fixatives, foaming agents, foam stabilizers, foam boosters, fungicides, gellants, glosser, hair conditioner, hair set resins, hair sheen agents, hair waving agents, humectants, lubricants, moisture barrier agents, moisturizers, ointment bases, opacifier, plasticizer, polish, polymers, powders, propellant, protein, refatting agents, sequestrant, silicones, skin calming agents, skin cleansers, skin conditioners, skin healing, skin lightening agents, skin protectants, skin smoothing agents, skin softening agents, skin soothing agents, stabilizers, sunscreen agents, surfactants, suspending agents, tanning accelerators, thickeners, vitamins, waxes, wetting agents, liquefiers, colors, flavors and/or fragrances.

16. The composition of claim 1, wherein the cosmetic composition takes a form selected from the group consisting of lotions, creams, sticks, roll-on formulations, mousses, sprays, aerosols, pad-applied formulations and masks.

17. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 27-40°C.

18. The composition of claim 1, wherein the viscosification occurs at a temperature in the range of about 30 to 37°C.

19. The composition of claim 1, wherein said composition is formulated as a product selected from the group consisting of baby products, baby shampoos, lotions, powders and creams; bath preparations, bath oils, tablets and salts, bubble baths, bath fragrances, bath capsules; eye makeup preparations, eyebrow pencil, eyeliner, eye shadow, eye lotion, eye makeup remover, mascara; fragrance preparations, colognes, toilet waters, powders and sachets; noncoloring hair preparations, hair conditioner, hair spray, hair straighteners, permanent waves, rinses, shampoos, tonics, dressings and other grooming aids; color cosmetics; hair coloring preparations, hair dye, hair tints, hair color sprays, hair lighteners and hair bleaches; makeup preparations, face powders, foundations, leg and body paints, lipstick; makeup bases, rouges and makeup fixatives; manicuring preparations, basecoats, undercoats, cuticle softeners, nail creams, nail extenders, nail polish and enamel, and remover, oral hygiene products, dentrifices, mouthwashes; personal cleanliness, bath soaps, detergents, deodorants, douches and feminine hygiene products; shaving preparations, aftershave lotion, beard softeners, men's talcum shaving cream, shaving soap, preshave lotions; skin care preparations, skin cleansing preparations, skin antiseptics, depilatories, face and neck cleansers, body and hand cleansers, foot powders; moisturizers, night preparations, paste masks, skin fresheners; and suntan preparations, suntan creams, gels and lotions, and indoor tanning preparations.

20

20. The cosmetic composition of claim 1 or 2, wherein the poloxamer component is present in an amount in the range of about 0.01 to 20 wt% and the poly(acrylic acid) component is present in the amount of about 0.01 to 20 wt%.

25

21. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamers.

30

22. The cosmetic composition of claim 1, wherein the polymer network comprises a plurality of poloxamer components randomly bonded to a poly(acrylic acid) backbone.

23. The cosmetic composition of claim 1, wherein the reversibly  
viscosifying polymer composition comprises a plurality of poly(acrylic acid)  
components randomly bonded to a poloxamer component.

5           24. The cosmetic composition of claim 1, wherein the aqueous-based  
medium is selected from the group consisting of water, salt solutions and water with  
water-miscible organic compound(s).

25. The cosmetic compositions of claim 1, further comprising an additive  
10 selected to increase transition temperature and increase viscosity of the reversible  
viscosifying polymer network.

26. The cosmetic composition of claim 1, further comprising an additive  
selected to increase transition temperature and decrease viscosity of the reversible  
15 viscosifying polymer network.

27. The cosmetic composition of claim 1, further comprising an additive  
selected to increase transition temperature without affecting viscosity of the reversible  
viscosifying polymer network.

20           28. The cosmetic composition of claim 1, further comprising an additive  
selected to decrease transition temperature and increase viscosity of the reversible  
viscosifying polymer network.

25           29. The cosmetic composition of claim 1, further comprising an additive  
selected to decrease transition temperature and decrease viscosity of the reversible  
viscosifying polymer network.

30. The cosmetic composition of claim 1, further comprising an additive selected to decrease transition temperature without affecting viscosity of the reversible viscosifying polymer network.

5 31. The cosmetic composition of claim 1, further comprising an additive selected to increase viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

32. The cosmetic composition of claim 1, further comprising an additive  
10 selected to decrease viscosity without affecting transition temperature of the reversibly viscosifying polymer network.

33. The cosmetic composition of claim 1 or 2, characterized in that the gel remains translucent to light before and after response to the environmental stimulus.

15

34. The cosmetic composition of claim 1, wherein the poly(acrylic acid) is branched.

35. Method of making a cosmetic composition, comprising:  
20 dissolving a poloxamer capable of aggregation in response to a change in temperature in acrylic acid monomer;  
initiating polymerization of the monomer to form a poly(acrylic acid) randomly bonded to the poloxamer, so as to form a reversibly viscosifying polymer composition;  
mixing the reversibly gelling polymer compositions with a cosmetic agent which  
25 imparts a desired cosmetic effect to the composition.

36. The method of claim 36, wherein a polymerization initiator is selected to provide the polymer network having a selected temperature of viscosification.

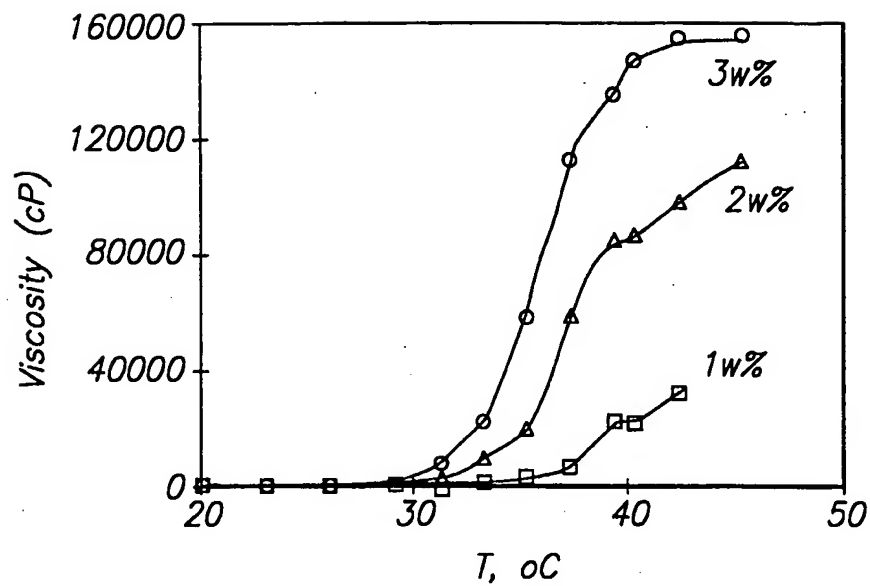
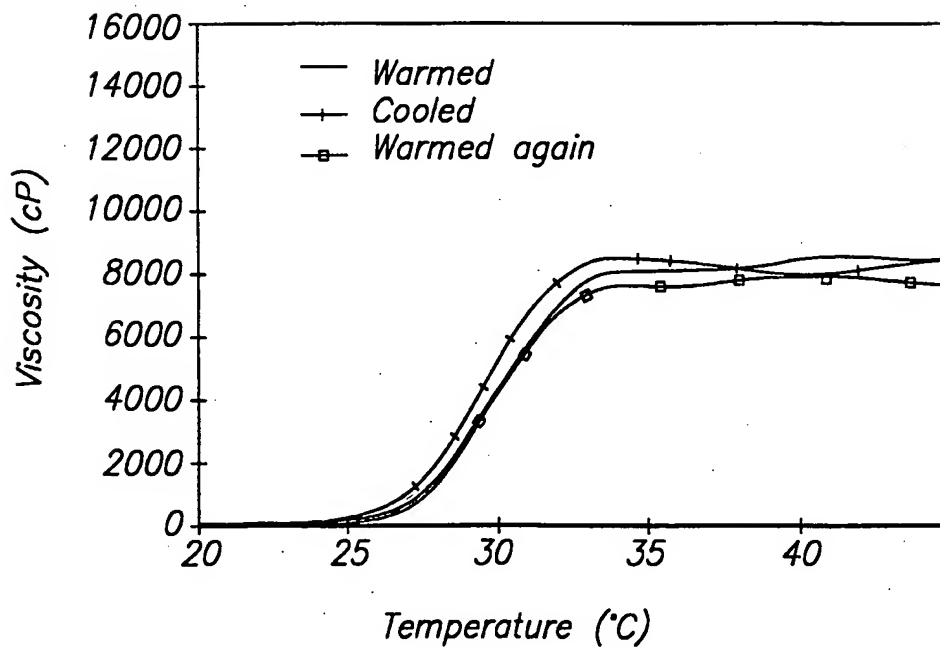
30 37. The method of claim 36, wherein one or more poloxamers are added.

38. The cosmetic composition of claim 1, wherein the reversibly  
viscosifying polymer network is present in an amount in the range of 0.01% - 10%.

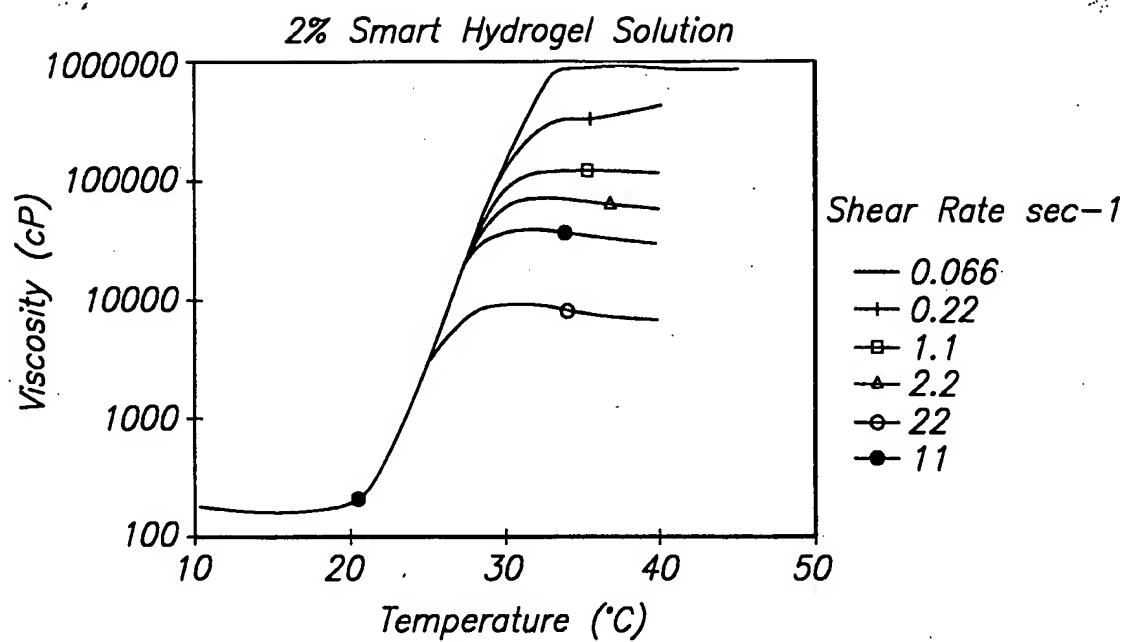
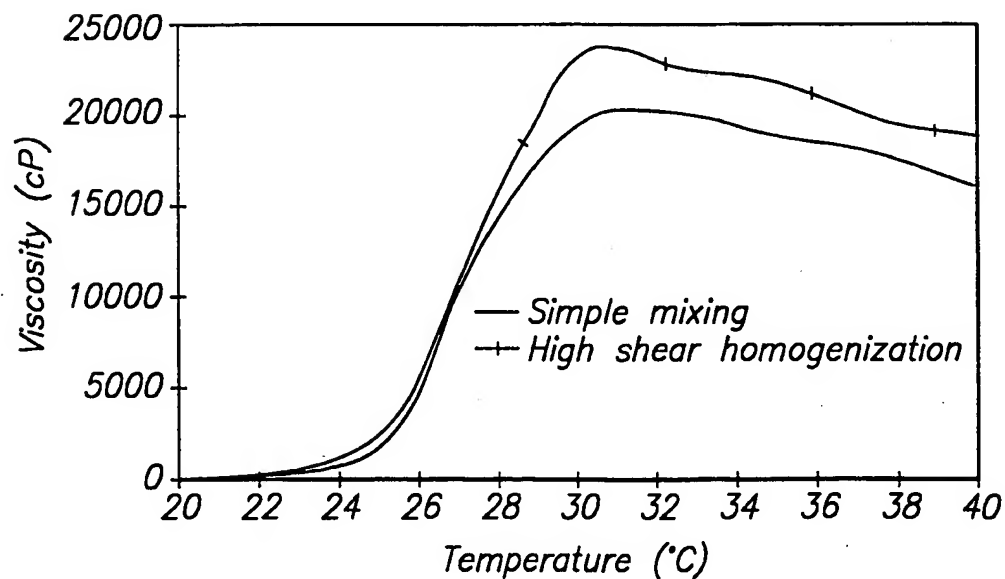
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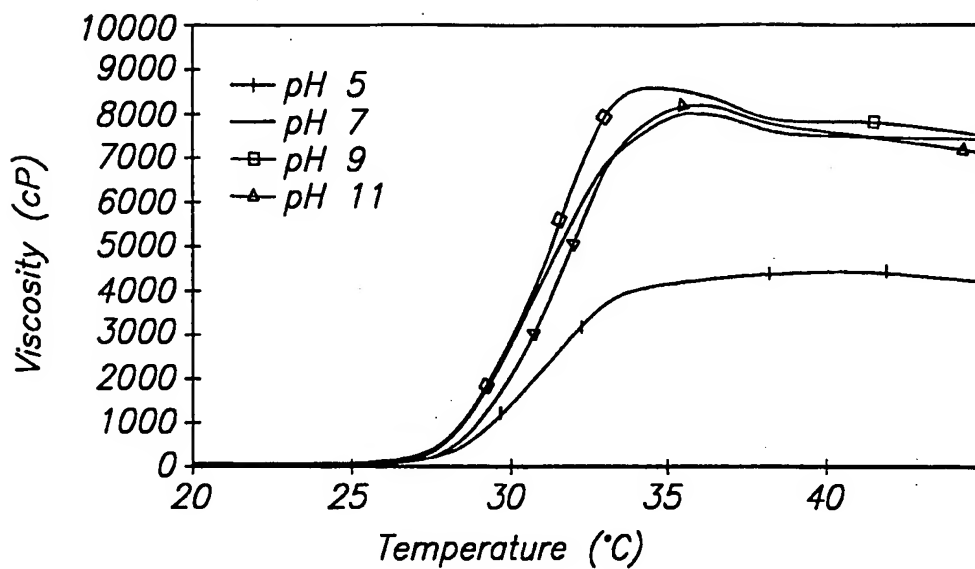
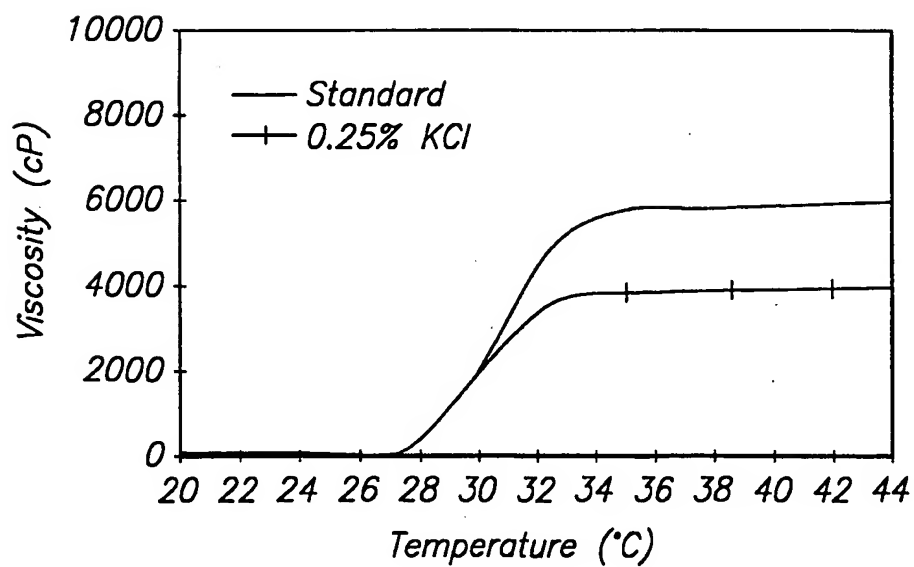
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**FIG. 1****FIG. 2**

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**FIG. 3****FIG. 4**

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**FIG. 5****FIG. 6**

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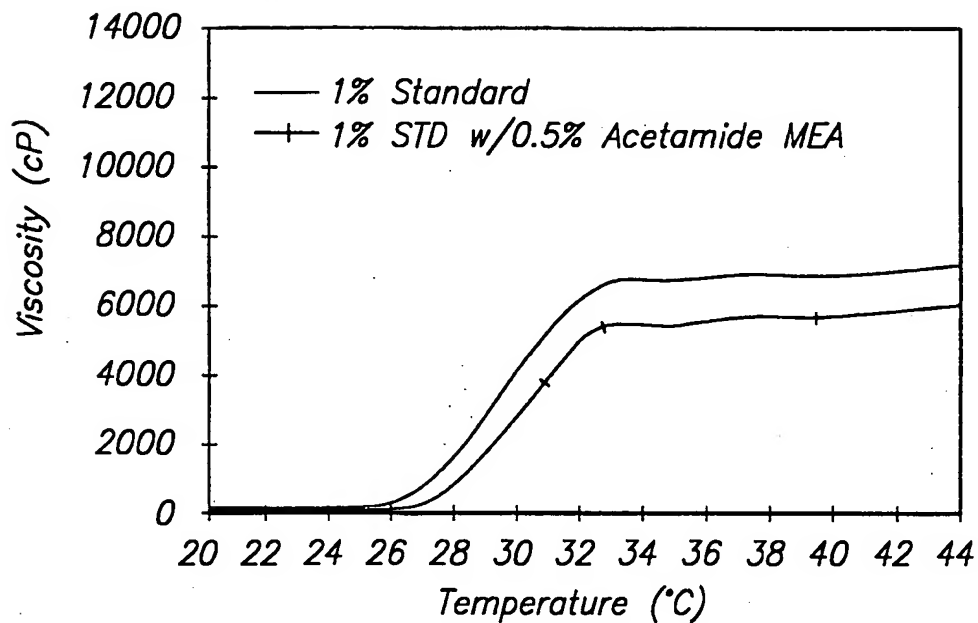


FIG. 7

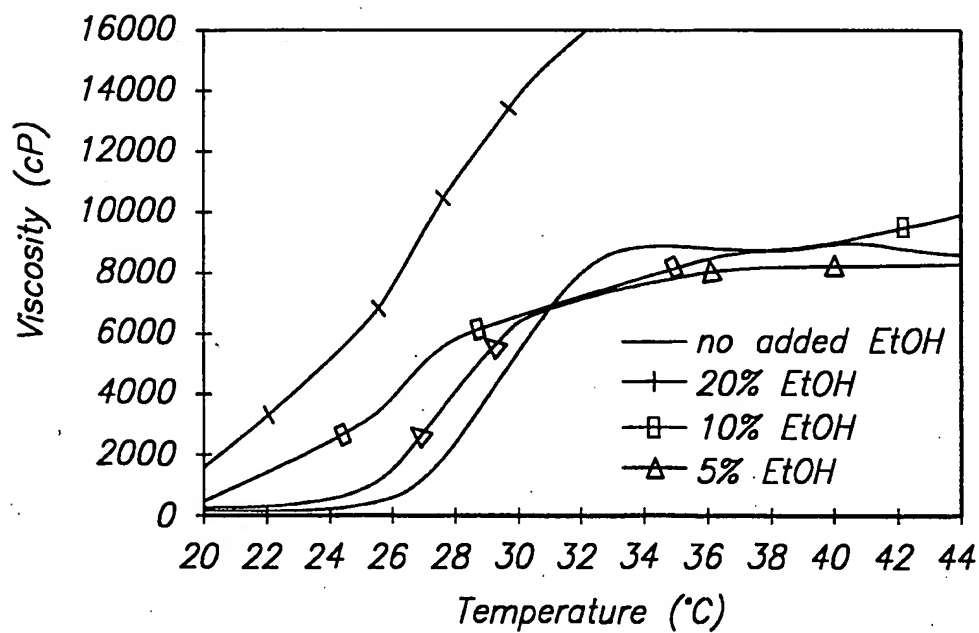
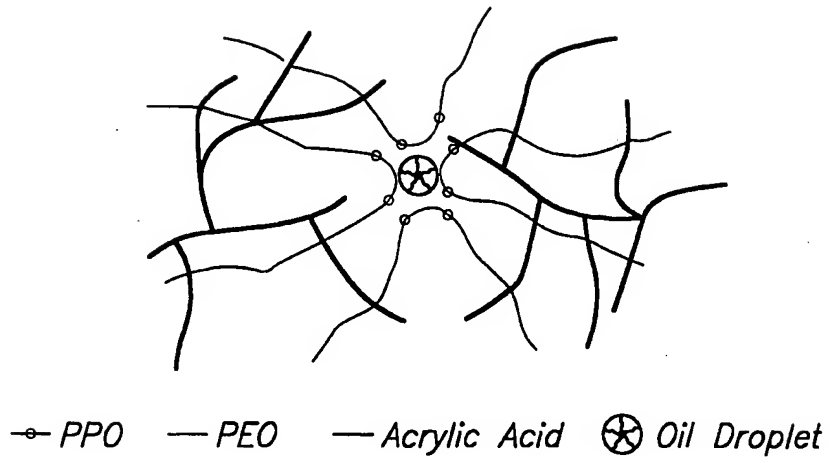
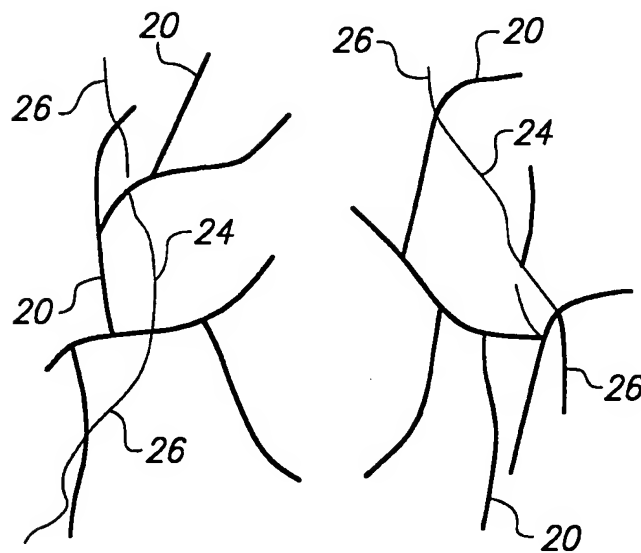
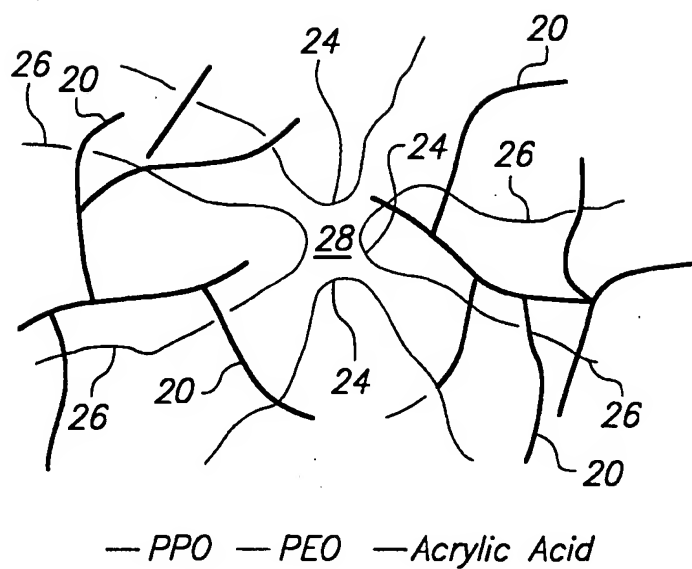
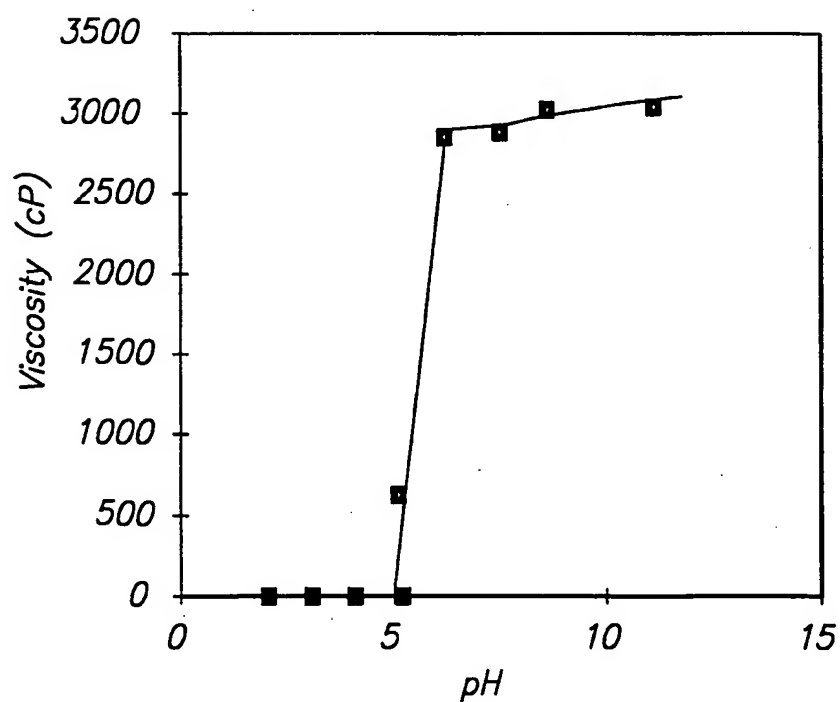


FIG. 8

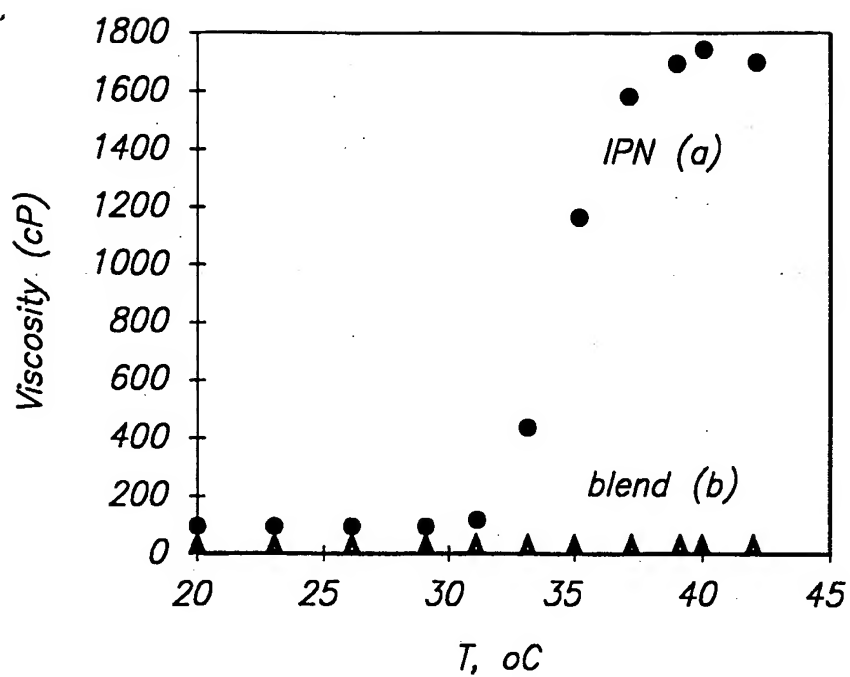
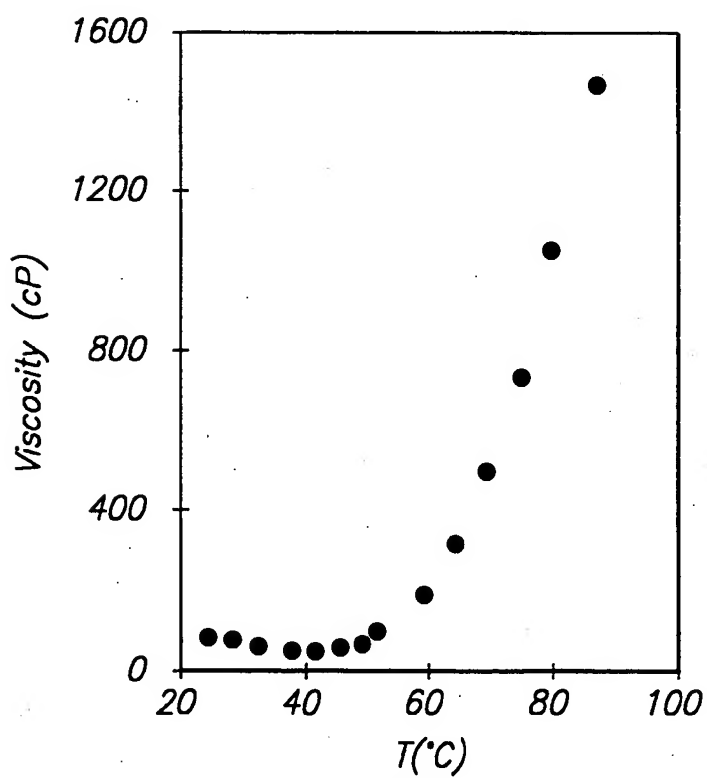
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**FIG. 9****FIG. 10A**

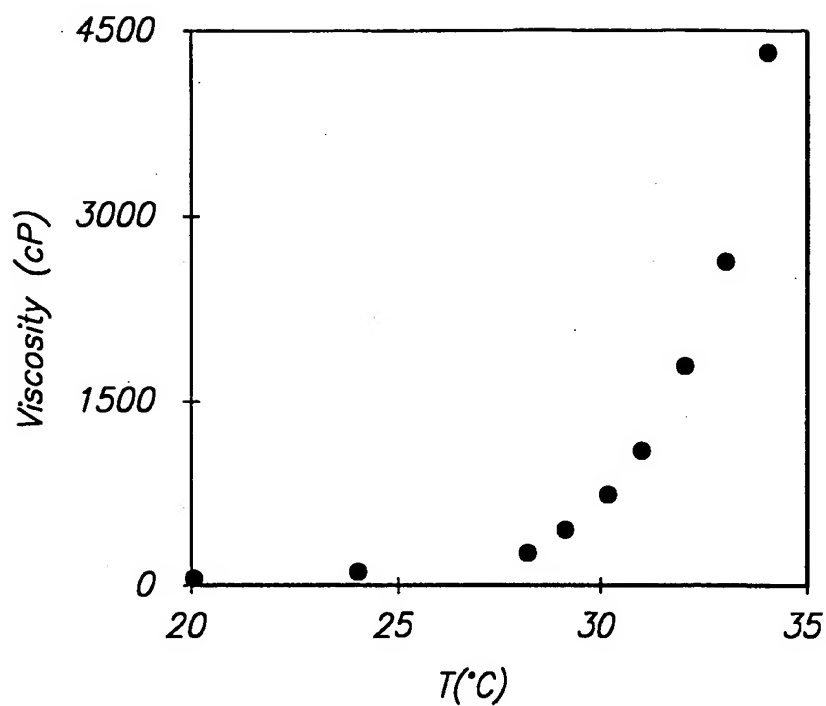
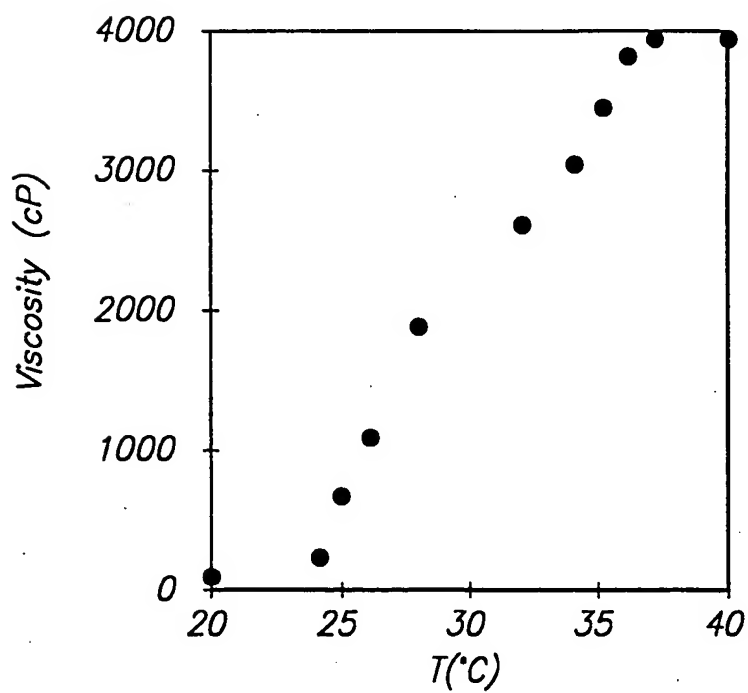
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**FIG. 10B****FIG. 11**

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**FIG. 12****FIG. 13**

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**FIG. 14****FIG. 15**



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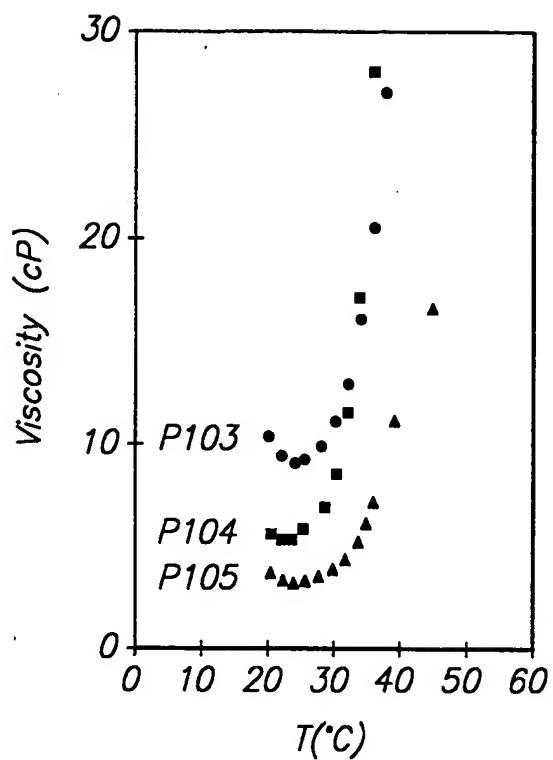


FIG. 16

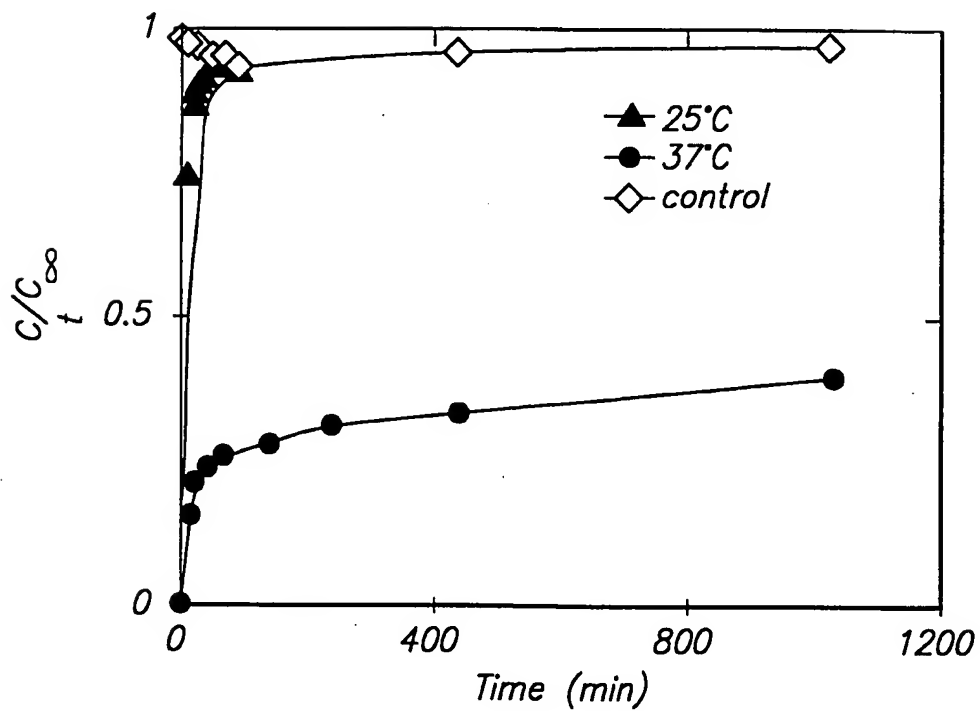
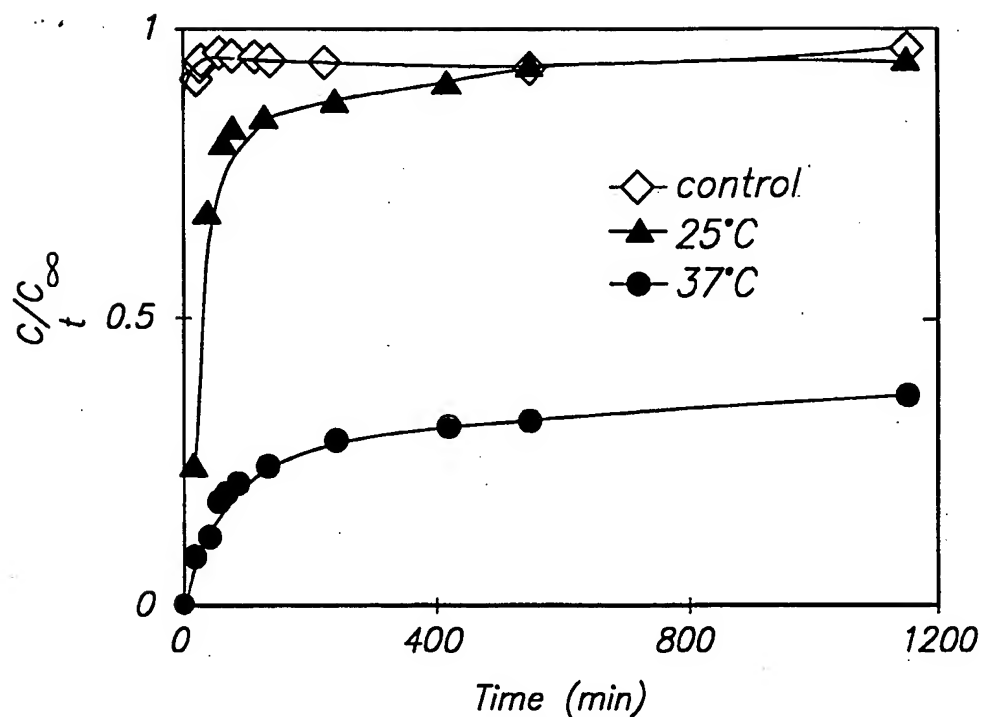
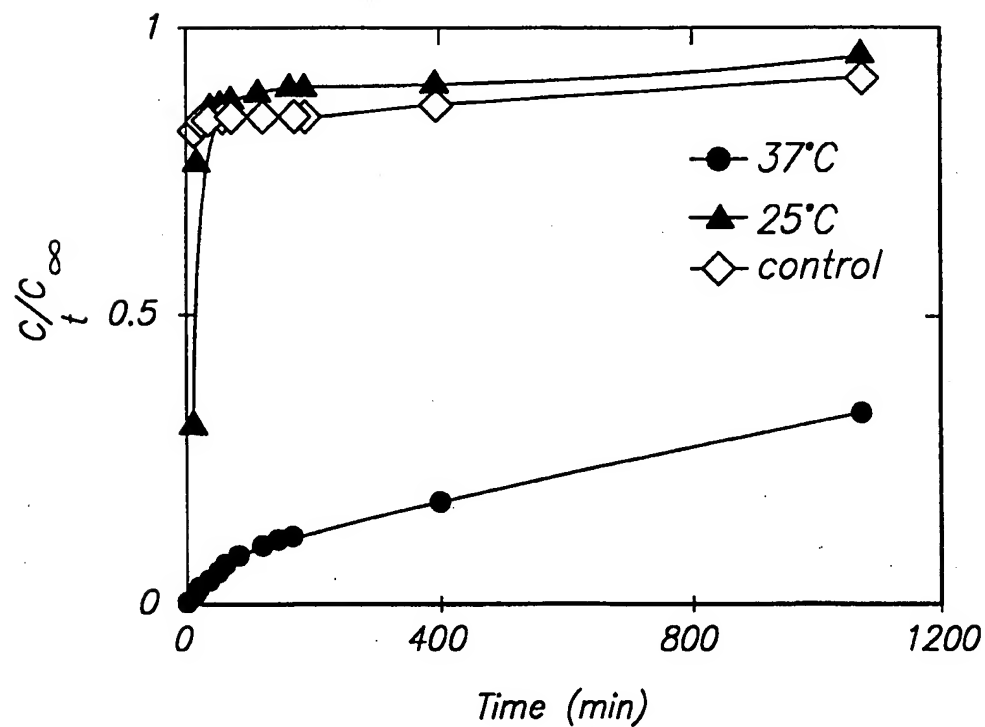


FIG. 17

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**FIG. 18****FIG. 19**

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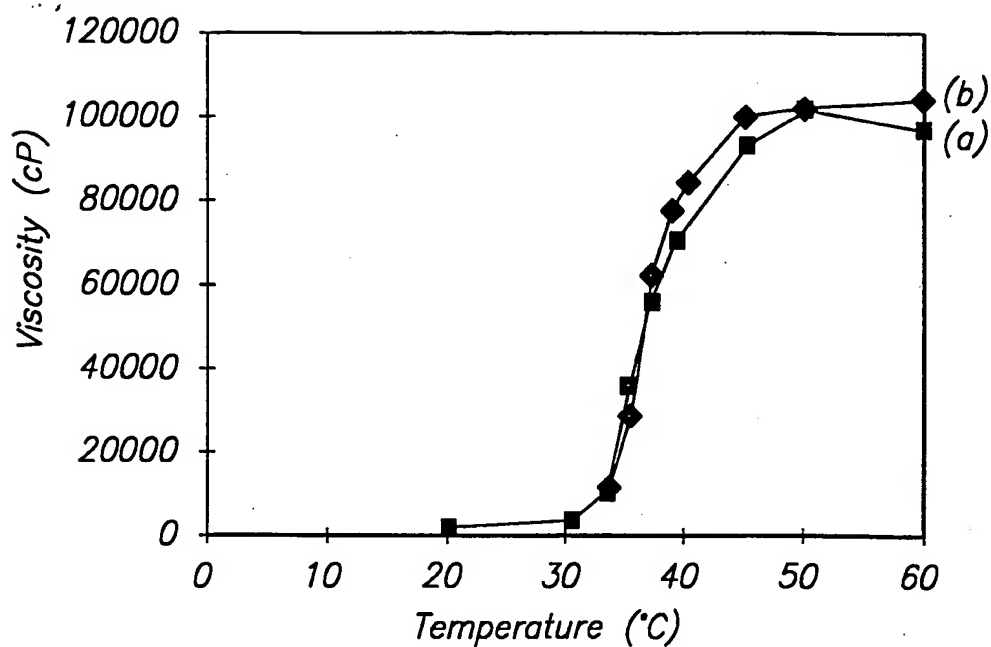


FIG. 20

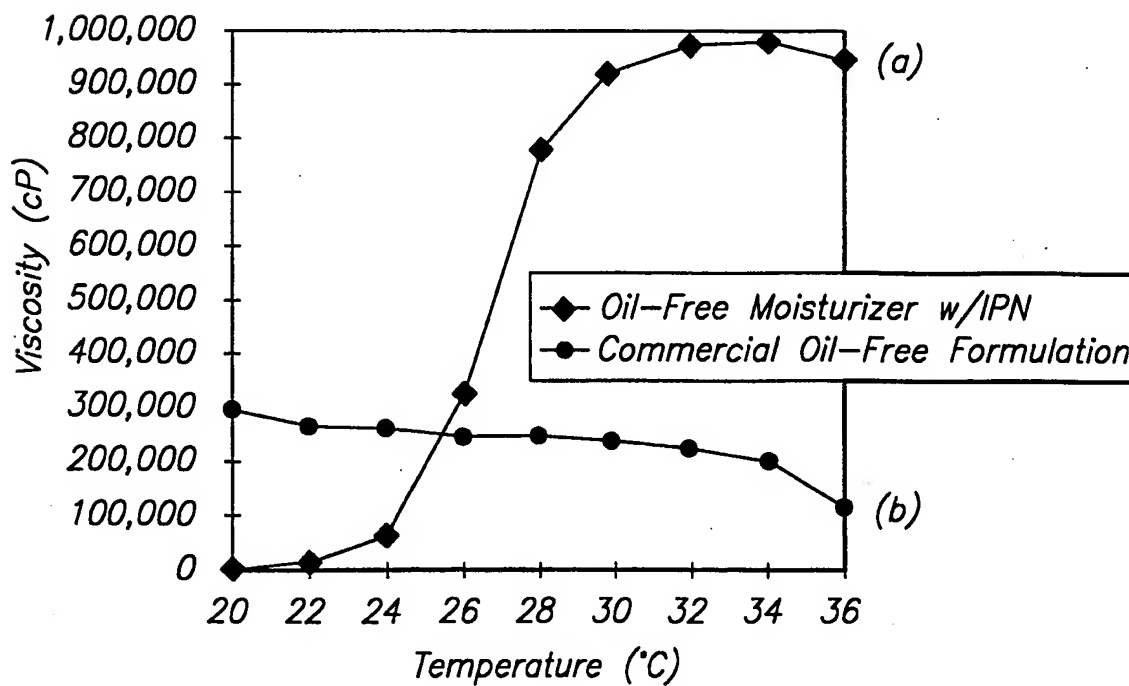


FIG. 21

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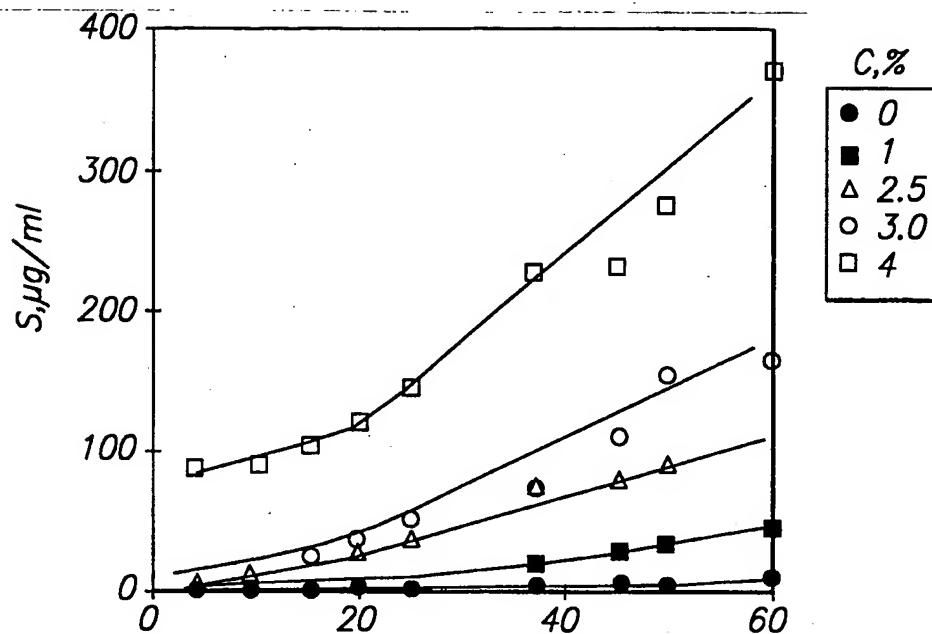


FIG. 22A

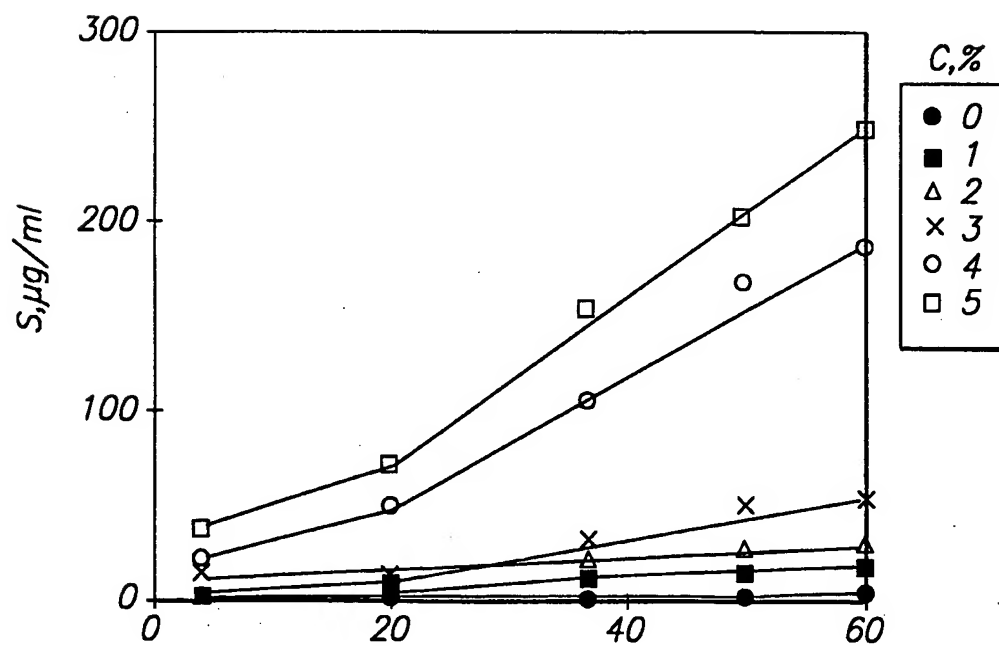


FIG. 22B

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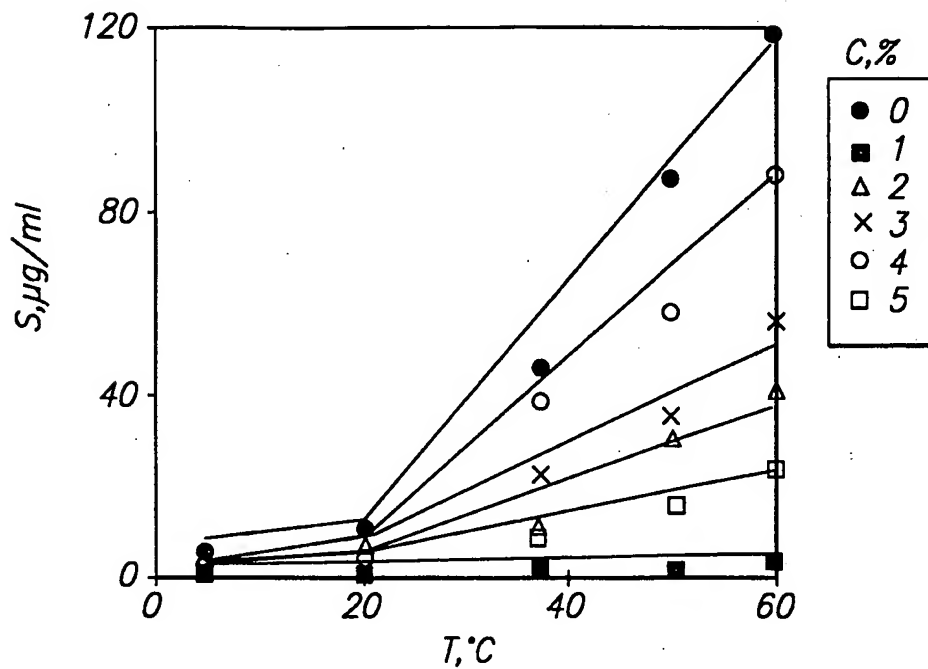


FIG. 22C

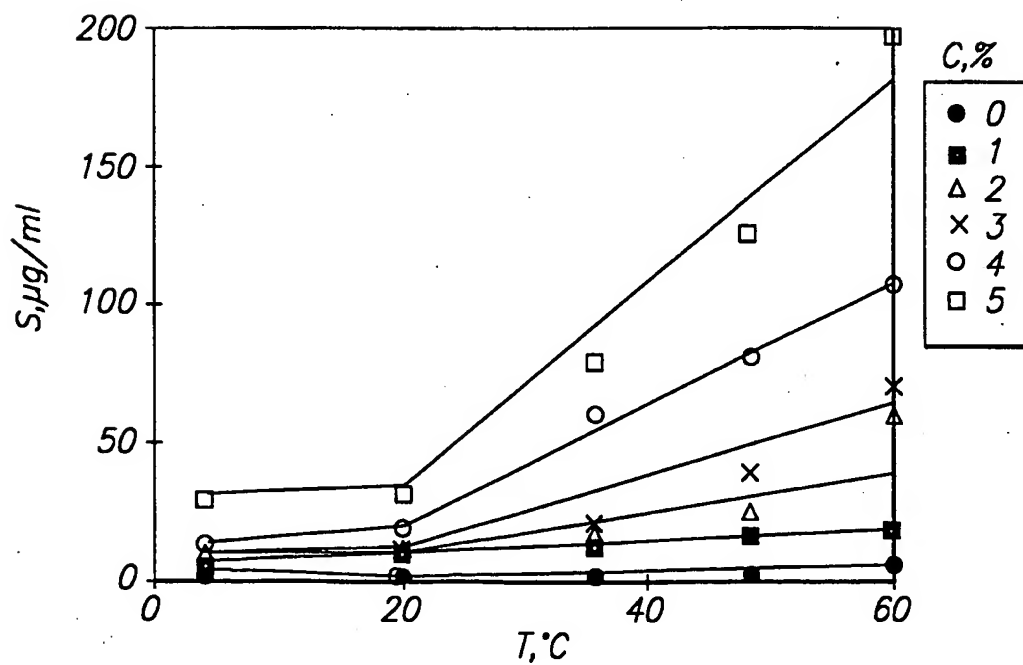


FIG. 22D

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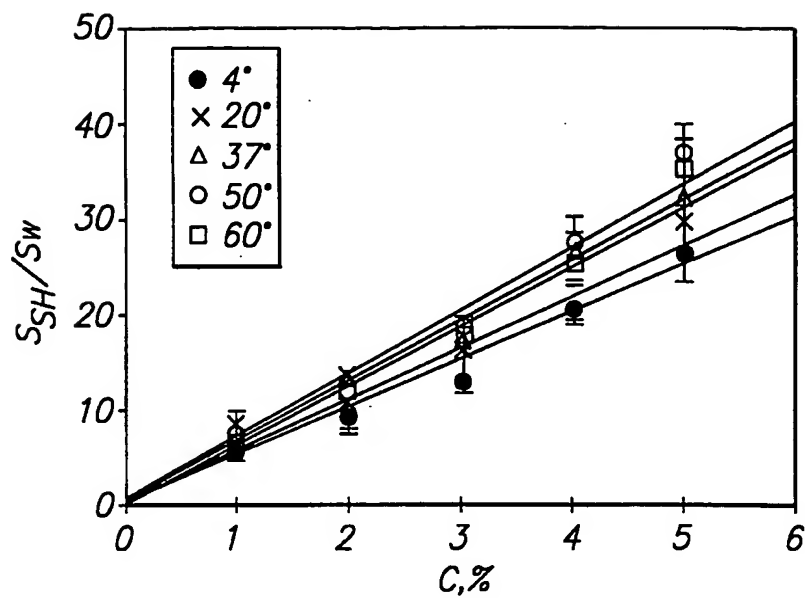


FIG. 23

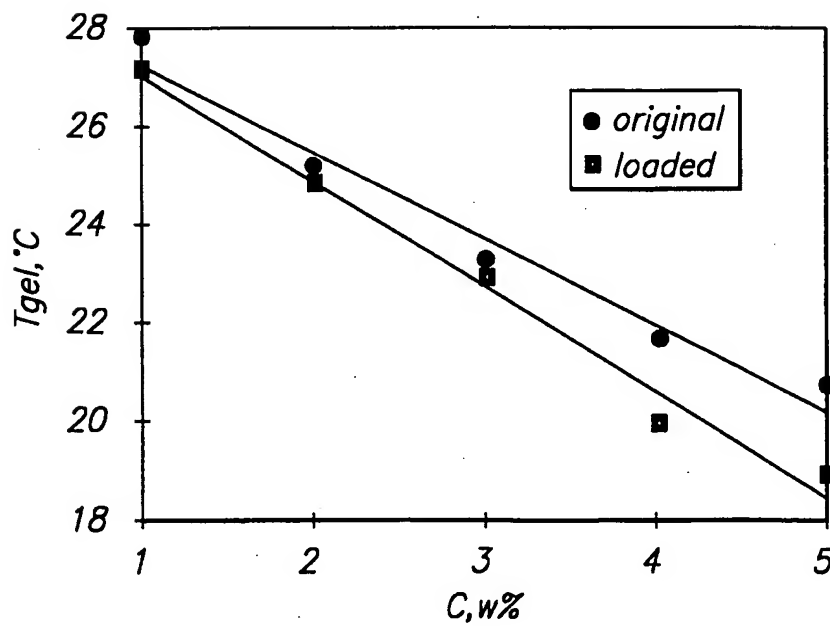


FIG. 24

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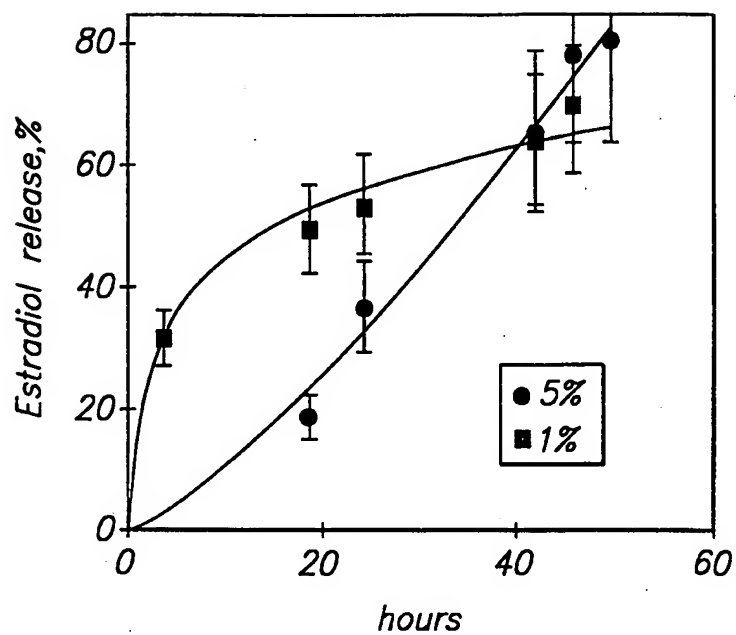


FIG. 25A

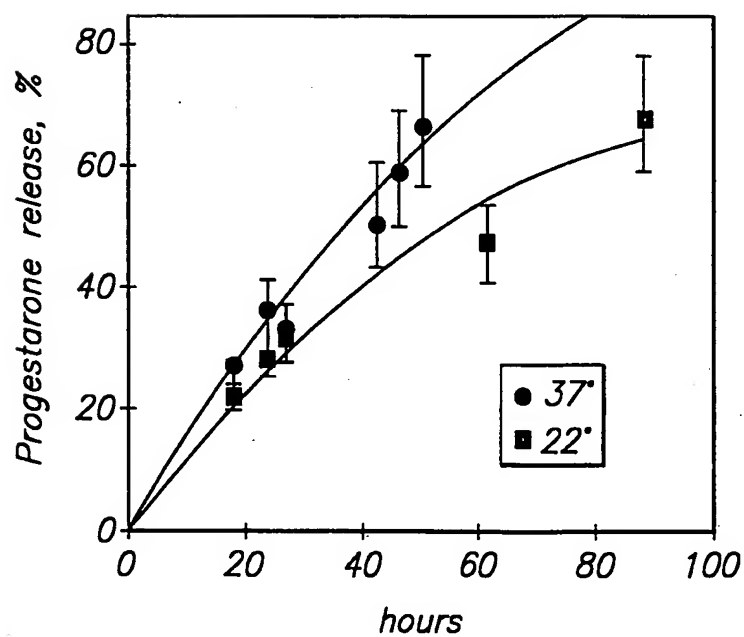


FIG. 25B

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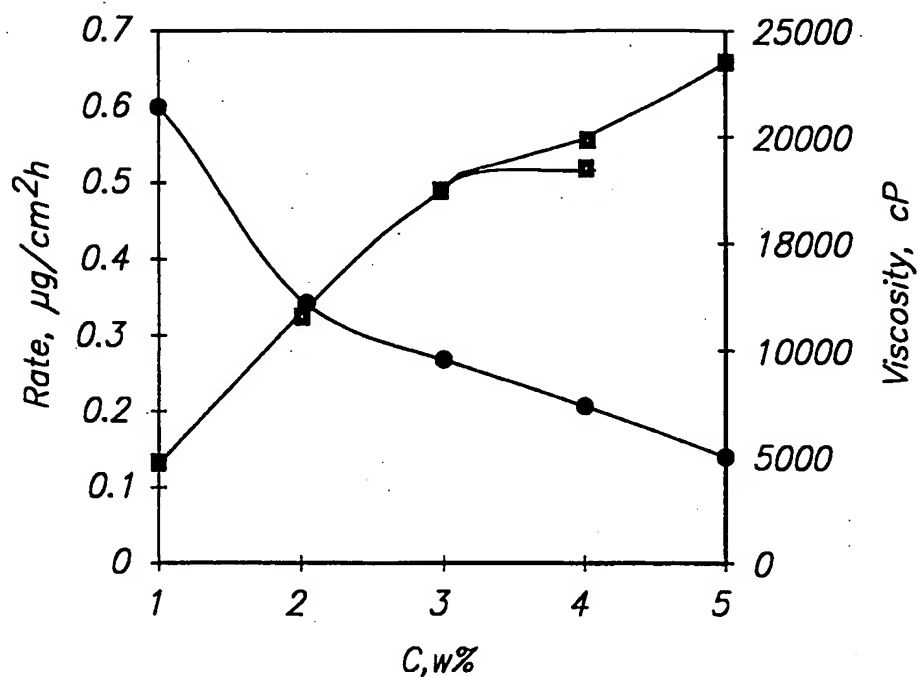


FIG. 26

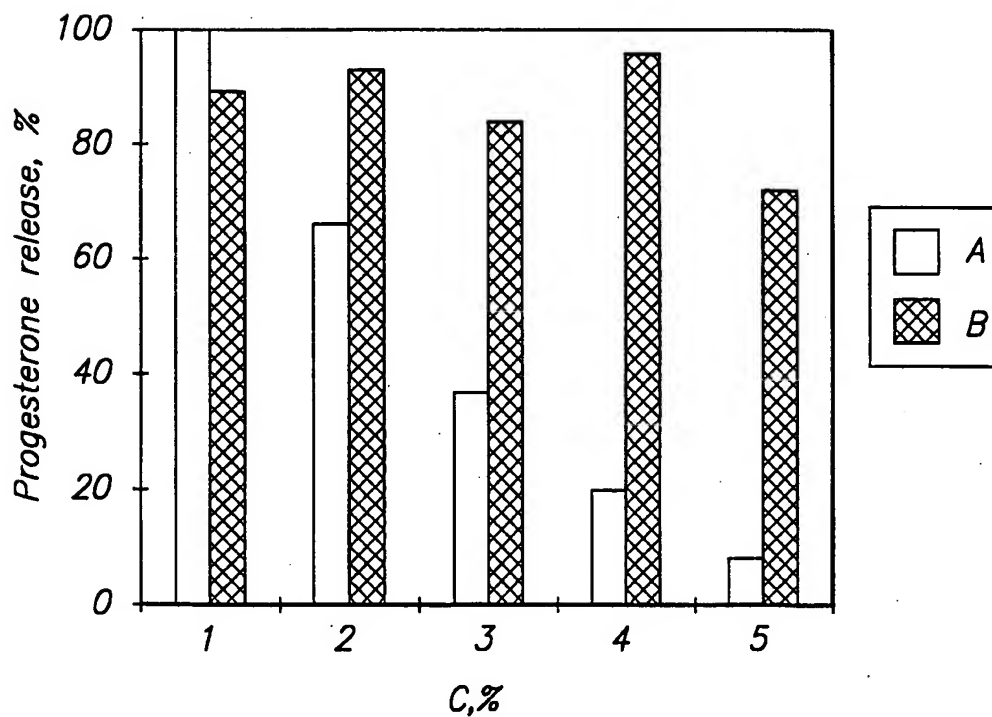
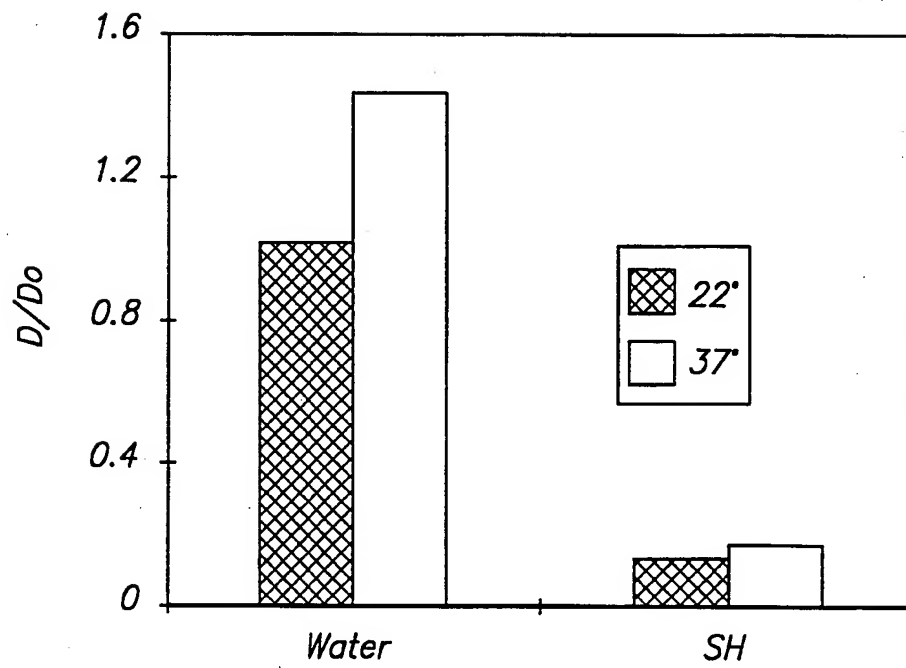


FIG. 27



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**FIG. 28**

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/09211

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A6JK 7/00, 7/021, 7/025, 7/06, 7/09, 7/16, 7/32, 7/42, 31/74

US CL : Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49, 59, 63, 64, 65, 70.1, 70.2, 60.7, 78.02, 78.08, 400, 401, 405

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS: COSMETIC, POLYACRYLIC ACID, POLYMER NETWORK, POLOXAMER

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 5,662,892 A (BOLICH, JR. et al.) 02 September 1997, see entire document.	1-38
Y	US 5,106,609 A (BOLICH, JR. et al.) 21 April 1992, see entire document.	1-38

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

03 AUGUST 1998

Date of mailing of the international search report

01 SEP 1998

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Commissioner of Patents and Trademarks  
Box PCT  
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Authorized officer

SHELLEY A. DODSON

Facsimile No. (703) 305-3230

Telephone No. (703) 308-1235

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US98/09211

## A. CLASSIFICATION OF SUBJECT MATTER:

US CL : 424/49, 59, 63, 64, 65, 70.1, 70.2, 60.7, 78.02, 78.08, 400, 401, 405

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